NOVEMBER, 1879.

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THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. VIII.—No. 11.] NOVEMBER, 1879. [NEW SERIES.

Farming in Montgomery Co., Md.

"A man can do a great deal of good in the world if he wishes so to do and will be in earnest about it."
FRANKLIN.

Messrs. Editors American Farmer:

I visited Sandy Spring, Montgomery county, Maryland, about two months ago, after an absence of thirty years. My former knowledge of that section and my recent observation enable me, I hope, to give a fair account of the wonderful change that has been wrought during the time mentioned by the industry and intelligence of the people thereof. Should you think the account I give will have the influence to encourage others of our dear old home, Maryland, to follow the example, will you please give it a place in your valuable and ever-useful journal? I will try and not be tedious; but from what I knew of that county in former days, and, I may say, the glory of what I see now, I am almost bewildered, and know not how to make the comparison.

All old men well remember that my own "dear old Harford" and Montgomery were rated the poor counties of the State. Neither liked to be thought the poorest. Each had a small portion of good land that had not been worked out by the raising of tobacco and the destructive system of our fathers of cropping, cropping, and returning nothing to the land as compensation for the crop taken. Harford had her belt of Deer Creek land, and some in Bush River Neck.

Montgomery had her sugar land on the Seneca and its tributaries, and a small amount lying on a little stream known as Hollings river, which lies just at the upper part of the now famous Sandy-Spring district, but not of it, except some four or five good farms. The rest of each county was poor indeed. Harford was jeered at for her staples of hoop-poles and herring, and Heaven help us! I don't know what we should have done but for our herring. Montgomery had not the benefit we had in the supply of fish, but she had nearer and better markets than we had, for whatever she could spare, in the cities of Washington and Georgetown: so we stood about equal, unless our larger territory made us the poorer, upon the plea of the man who tried to hide his want from a stranger that was passing through his neighborhood, and had given his boy a liberal reward for showing him the right road to take: "Stranger, that is very kind of you, but we are not so poor; we don't own this land."

Montgomery, or Sandy Spring proper, was aptly illustrated by a story that was told by a happy facetious friend I have there, in our chat of days that are gone, and now thus the story goes: You remember our mutual friend, George Shoemaker, the flour inspector of Georgetown. He had some friends who visited him from Pennsylvania, and having other friends in Sandy Spring they extended their visit there. Upon their return to Georgetown, he said: you saw the friends at Sandy Spring, and they were glad to see you and treated you well?

Oh yes! truly they did; but, George, in sharing their hospitality, I felt at every mouthful that down went a *quarter acre's* product.

But a truce to story-telling by way of illustrations; let me deal in facts.

The Sandy Spring district or neighborhood was, in the early days, settled by a body of Friends—most worthy people—consisting of the Thomases, Brookses, Briggses, Stablers, Bentleys, Snowdens, Moores, Gilpins and some others. I judge from the size of the old houses they must have brought considerable wealth with them. At that time Friends held slaves, as well as others; and as tobacco was the moneyed crop, they, like all others, engaged in its production. The continual cropping of tobacco soon exhausted the light lands. They freed their slaves, and many of the young men went to Baltimore and other cities, and engaged in other pursuits, and I believe were generally successful.

Philip E. Thomas, the first president of the Baltimore and Ohio railroad, was a native of Montgomery. One of the Briggs as well as one of the Moores were eminent engineers in the employ of the government.

All who left the old homes succeeded well, and were useful to their kind. Those who *staid* at the old homesteads were a generous, hospitable

body of men, living well and happily on gathered means of former times, for certainly their lands produced them nothing adequate to their support. These were the *old* men of my young days. They had large bodies of land, but most of it was out in commons.

"I remember well forty-two years ago, that from the Sandy Spring store down on the road leading to what is now called Laurel, the land yielded nothing, save the gardens and small fields of poor corn, and they were but short distances from the store. All the rest of the way, a distance of ten miles, there was not an enclosure of any kind, save one old house that was situated in a sandy vale or bottom, on the ridge of table land lying between the Patuxent and the Point—a stream running into the eastern branch of the Potomac. This plane of land, from two to three miles wide, certainty yielded nothing for the support of man or beast, and now it is nearer what we suppose Arcadia was than any part of the world I have ever seen; and the change, from what I could hear, has all taken place within the past twenty or twenty-five years. As you go along the road spoken of above, there is one continuation of farms, varying in size, I should judge, from eighty to a hundred and fifty acres—but few of the latter size—well-fenced; fields laid off with great uniformity; houses of fine size, with all modern arrangements for the comfort of the occupants, with fine lawns in front of them, shaded by beautiful trees and shrubbery; gardens well kept in full production of vegetables of every kind; young orchards of apples of many varieties and of the *choicest* kind, and an abundance of small fruits, such as strawberries, blackberries, grapes, etc. The fields are in the highest state of cultivation, producing full crops of wheat, corn and grass. None think wheat of less than thirty bushels to the acre a crop. Potatoes they raise most successfully—some of them, during the time of the "late unpleasantness," making crops of one to two thousand bushels annually. Their fields of grass for the scythe yield heavy crops, and those for grazing are stocked with cows of the choicest breeds, such as Jerseys, Devons, Durhams, and grades of all kinds,—making their dairies pay them well.

Some raise choice stock for sale. Mr. Thomas J. Lea has a flock of Cotswold sheep and pen of Berkshire swine, as advertised in the *Farmer*. He is one of their representative men, full of energy and good judgment to direct him in whatever he undertakes. If I understand rightly, he had but one hundred acres of land until this summer, when he purchased fifty acres more. On his hundred acres he carried forty head of cattle last winter, besides his flock of Cotswold sheep and herd of Berkshire swine. I think all will say this shows good management in farming. He is a live man and fair representative of a live neighborhood. His land is not on the table of land before mentioned as so entirely worn out; it lies on the Hollings river, where the land is naturally good and very strong, and never was entirely worn down.

Taking Sandy Spring Meeting-House as a centre, the improvement around is wonderful indeed. Southwest and west of it was a district of very wretched, poor, cold, wet land, not near so easy or susceptible of improvement as the barren table of land lying south and east of the centre before spoken of. But now the farms are very productive,—made so by underdraining, liming, industry and good judgment in cultivation of crops, especially the farms of Messrs. Hallowell, Stone, Farquhar, Moore, and others the names of whose owners I did not learn.

Immediately south lies the house of the venerable patriarch of farmers, (Edward Stabler,) whose example and teaching have done more good for the farmers and the country through them, (for the life-blood of the whole comes through the product of the soil) than almost any man now living. It is needless for me to say anything of the change he has made in the land he owns, for it has been so carefully and well stated in the *Farmer* by his truthful pen that none could mend it, and I, at least, would not have the presumption to try.

Suffice it to say, it is all that could be wished or the most hopeful could expect. May his mantle fall upon some of his sons to continue his name and usefulness! I was glad to find in my short but pleasant interview with him, that he is still the steady advocate of lime as the great foundation of renovating our land and its continued productiveness. Now, in the sere leaf of life, his mind is clear, his smile as genial as ever, and his speech as free, for with him "thought is speech and speech is truth."

Now the outcome of the effort of the farmers in improving their lands and the judicious cultivation of the same, is the increase of the population more than tenfold and the building up of many villages, filled with busy mechanics, such as smiths, wheelwrights, harness-makers and carpenters,—all needed and employed by the farmer.

There is quite a village at Sandy Spring proper, with several good dwellings, an extensive steam grist and saw mill, a substantial building in which their insurance office is kept, as well as their bank of deposit or safety,—all in charge of Robert Moore, formerly of Baltimore, a man of great experience in financial matters, who has the entire confidence of the whole community. He is the father of Joseph T. Moore, the Master of the Farmers' Grange of Maryland. They have a tasty building as a lyceum and lecture room, in which, I believe, their circulating library is kept, and much else to make their village useful and pleasant.

There is the extensive store of Gilpin & Bently, in which the post-office is kept, and they have two stages each way every day, carrying the mail and passengers to and from Laurel. Several other villages, as Ashton, Mechanicsville and Brighton, with good stores, smith and other workshops, with nice houses for the craftsmen and their families; and all this within an area of six by eight miles, if as much. Now it may be asked, and it is the important question: how has all this been brought about? By a belief in the caption of our article, as experienced by the sage Franklin, and that wealth and comfort lie in and must come from the soil,—God's heritage to man for his sustenance and full develop-

ment,—and that industry is a virtue indispensable, directed by intelligence and honesty of purpose.

With full faith in their conviction, and their works in accordance with their faith, they have thus progressed, as all others may who, with like faith and works, are influenced by their example. They seem to have solved the problem of the right relation of the colored citizen, so as to make his labor, as it should be, valuable to the employer and the employee. How much effort and care it has required of the land-owners I do not know, but the evidence proves the fact.

Many of the colored families have nice, comfortable homes of a few acres each, their houses of good size, nicely built, and painted or neatly whitewashed; they have good gardens, well worked and well planted with fruit.

Those who are not so fortunate as to own their houses, the farmers have comfortable houses built for them and allow them ground enough for fruit and vegetable gardens, which are kept in a cleanly condition. I think I saw as many as fifty of these houses and not more than one or two but what showed the nicest care,—clearly showing progress made in establishing a self-respect among the colored people, which we all know is necessary before we can hope for improvement in men of any color or class. Thus far have they gone, and all are much benefited by what has been done.

The farmers all assured me they have no difficulty about labor; it was regular and faithful; they could plant crops as desired, with a certainty of having them worked and harvested at the proper time and in good order.

The laborer is constantly employed, regularly paid, and consequently contented and happy. I wish our people throughout the whole country would learn to do as they have done.

If the people of Maryland would make Sandy Spring a Mecca to which they could make pilgrimages at seed-time and at harvest, they would be more benefited than the most devout Mahommedan ever was after paying the many exactions he is subject to. The people would be glad to see them, treat them courteously and hospitably, and explain to them the ways and means by which they have reclaimed their worn-out lands, and their mode of cropping and cultivation of the same, through which they have obtained the prosperous and safe condition they now hold.

One more thing, not the least: most of them read the *American Farmer*, the great exponent of agricultural knowledge in this section.

Would that *all* our farmers would follow their example! Very respectfully, yours,

R. E. DUVALL.

Harford Co., Md., Sept. 13th, 1879.

Improving Poor Lands in Virginia.

Messrs. Editors American Farmer:

I desire to give through your valuable and widely-circulated magazine a short statement of what has been accomplished in renovating a very poor portion of land in Mount Vernon district, Fairfax county, Virginia, located about five miles southwest of Alexandria.

At a recent meeting of the Woodlawn Agricultural Society, held at the house of Taylor W. Blunt, the members resolved themselves into a committee of the whole and made a critical examination of the farm of our host, when the following facts were elicited in regard to his management and his success:

Seven years ago the farm was purchased at $26 per acre. It contained about 100 acres, about twenty acres under cultivation, but so poor that it would not raise a barrel of corn to the acre; the remainder was in wood, brush and briers. There was a small house, but no barn. Now there is a good-sized barn and all necessary out-buildings, an addition to the house, with a well of water at the house and one at the barn, all the land except fifteen acres cleared up and under cultivation. About twenty acres in apple, pear and peach orchards, nearly all in bearing,—the trees looking remarkably thrifty, having had a coat of lime, salt and potash applied for three years past, with good results therefrom. The stock consists of four horses, eight horned cattle, thirty sheep, twelve Berkshire hogs, poultry, etc. All this year's crop of wheat and part of last year's in the bins; also some old corn on hand; a barn full of first quality hay, and several stacks outside; about one acre of good cabbage growing, and several acres of buckwheat and turnips. His hay crop produced from one to three tons to the acre. All the land under cultivation had received one coat of manure from his stables in the course of the seven years, and to the greater part had been applied from sixty to one hundred bushels of oyster-shell lime per acre; also bone and guano as circumstances would allow. All these improvements have been accomplished by himself and wife (with no help from their three small children) in seven years, with no capital or stock to start with after paying for his land. In addition to his stock and crops, he has a few hundred dollars surplus.

In subduing brush land, Mr. Blunt contends there is great advantage in cutting the brush and burning it in exactly the right time. His father taught him, in his native place in New Hampshire, to cut brush near the full of the moon in August, and burn it at the full of the moon in September or October. The sprouts that spring up from cutting to that of burning time are roasted or burned so that the sap becomes heated, and when it descends into the roots it becomes sour and poisons them so that no more sprouts spring up afterwards.

After giving this statement in regard to the management and condition of his farm, Mr. Blunt asked the advice of the club in regard to accepting an offer of permanent employment at $100 per month, which would necessitate the selling or leasing his farm. The unanimous advice was to stay on his farm and enjoy the fruits of his well-earned labors.

This example of persevering industry and discretion displayed in renovating a poor "worn-out" portion of Virginia land is but an instance of what can be accomplished by well-directed efforts in making a "wilderness to

blossom as the rose," reminding us of an adage used as a writing-copy in our school-boy days: "What man has done, man may do again."

N. W. P.

Manures—No. 1.

Messrs. Editors American Farmer:

Pursuant to my promise in the October number of your valuable journal, I herewith submit for your consideration the first installment of a series of "manurial articles" which I have in preparation expressly for the *American Farmer;* for, judging from the tone and character of the immense pile (may it increase in size) of letters received from your readers, I am satisfied that the farmers of the North will have to look to their laurels lest they are borne away by the progressive Southern farmer. These articles may be considered as worthy the name of authenticity, inasmuch as whenever anything comes up connected with the subject with which I am perfectly familiar, I resort to my laboratory and practically demonstrate by actual experiment each and every theory advanced, and the same corroborates the testimony and experiments of those of your readers who have taken the trouble to do as requested, viz: relate their observations and experiments by letter in order that I may be furnished with nothing but reliable data.

This manure, then, of which I speak is *any* fertilizing compound or simple ingredient added to a soil, of which it is naturally deficient; and as all cultivated lands should contain the earths, silica, carbonate of lime, alumina, decomposing organic matter and certain saline substances, it is evident that when any one of these is contained in the land in insufficient quantities for the supply of plant food, that then the addition of that substance, either in its simple or a compound form, constitutes the great art of manuring.

In view of this we will divide fertilizers—they divide themselves in reality—into three general classes: 1. The earthy, which chemistry proves to be by far the most permanent portions of the soil, and are usually applied in the largest proportions. 2. The organic, (vegetable and animal,) which are the least permanent, and are used in much smaller quantities than the earthy. 3. The saline, which are the most sparingly applied of all fertilizers, are the most readily absorbed by plants, and whose period of duration in the soil is longer than the organic, but less than the earthy. A manure is either useful to vegetation, by affording, in its simple or decomposed state, direct food or constituent elements, or else it is a fertilizer, by adding to the soil additional power to absorb and retain atmospheric gases and moisture. I shall maintain and attempt to show in subsequent articles that most manures which are commonly applied to the land assists the growth of plants in both ways. Viewing the question from an abstract standpoint, it must be evident that, inasmuch as animals receive most of their nutriment directly or indirectly from the vegetable kingdom, their excrement, or their decomposed bodies, returning these to the soil must form the best manure.

With reference to inorganic substances, clay of the earthy manures and some of the saline fertilizers act principally by their absorption and retention of moisture. Gypsum, it is true, enters into the composition of some of the grasses, and, in minute proportions, other salts do the same; but, if we except phosphate of lime, (the earthy salt of bones,) none of the salts can be considered as being a very general direct food for plants. Sir Humphrey Davy very clearly explains the desirable objects in the fertilization of the soil. He says: "The plants growing in a soil incapable of supplying them with sufficient manure or dead organized matter are generally very low, having brown or dark green leaves, and their woody fibres abound in earth; those vegetating in peaty soils, or in lands too copiously supplied with animal or vegetable matter, rapidly expand, produce large bright-green leaves, abound in sap, and generally blossom prematurely. Excess of poverty or riches are almost equally fatal to the hopes of the farmer; and the true constitution of the soil for the best crop is that in which the earthy materials, the moisture and manure are properly associated, and in which the decomposable vegetable or animal matter does not exceed one-fourth of the weight of the earthy constituents."

Of the organic manures, those which the most readily putrify are most rapid in their effects. But then they are the most speedily exhausted: thus oil and fish, the most rapid of fertilizers, are almost entirely exhausted by the first few crops; while bones, which decay very slowly, will last some time longer. The effects of chopped woolen rags have been found excellent on a rich clay soil in New York for two years, while in Kennett their effects were perceptible for three or four years. Farm-yard dung, when applied in different states of freshness, illustrates the same position. M. Hasrenfrantz manured two pieces of the same kind of soil, the one with a mixture of dung and straw highly putrified, and the other with the same mixture newly made and the straw almost fresh. He observed that during the first year the plants which grew on the land with the putrified dung produced a much better crop than the other; but the second year the ground which had been manured with the dung not putrified produced the best crop; the same result appeared the third year; after which both appeared to be equally exhausted. Another experiment of the same chemist renders this truth still more evident. He allowed wood shavings to remain in a moist place for about ten months till they began to putrify, and then spread them over a piece of ground as a manure. The first two years this piece of ground produced nothing more than others which had not been manured at all; the third year it was better; the fourth year it was still better; the fifth year it reached its maximum of fertility; after it declined constantly until the ninth, when it was utterly incapable of producing any crop whatever.

It is of the highest importance to every farmer that he obtains a correct knowledge of the mode in which those manures operate which are found to be advantageous to the growth of his

crops. He must discard from his mind all those false conclusions which are sometimes drawn with regard to an imaginary power assigned to plants of generating vegetable substances, for they can effect no such miraculous results. It is true that they can combine the gases or elements of vegetable matters together, and form gluten, starch, gum, sugar, woody fibre, &c.; they can absorb and arrange the earths and saline bodies; but the oxygen, the nitrogen and the hydrogen, of which the first-named are composed, and which plants usually obtain either from the atmosphere or by the decomposition of organic matter, they can no more create than they can form the lime and silica which are as commonly present in most vegetables as sugar, gum or woody fibre. I have proved this by raising an oat to maturity in nothing else but pure carbonate of lime, watering it with pure distilled water. It grew but languidly, and although it had a free and uninterrupted supply of pure atmospheric air, yet the access of all the dust and vapors arising from my working laboratory was carefully prevented. After the oat had discontinued growing I analyzed the plant, and found it much increased in the carbonate of lime; but its silica was somewhat diminished, a grain of oat being found to yield none, but this may be partially attributed to loss of husk during vegetation. Whatever earthy or saline matters, therefore, are found in plants must have either been derived from the natural soil or furnished by the manures added to it, whether it be carbonate of lime or silica, alumina, sulphate of lime or phosphate of lime. It should also become a received axiom with the farmer that there is no part of any decomposing animal or vegetable manure but what is, either in its gaseous or solid state, the natural food of plants; thus the gases emitted by the putrefaction of a dunghill are so much lost to the vegetable matters of the soil, and such an injury is never submitted to by the intelligent farmer but from an unavoidable (sometimes) necessity. Hence the value ef green manures; for in these cases every portion of the decaying and putrifying and fermenting fertilizer is gradually absorbed by the roots and leaves of the succeeding crop.

Farmers, do not be afraid of intruding on my time. Send me your experiments.

J. F. ELSOM.

Elsom's Laboratory, Forrestville, N. Y., Oct., 1879.

[TO BE CONTINUED]

The Beet-Sugar Industry.

The Franklin Farmers' Club, of Norfolk county, Mass., both officially and through the energy and enterprise of individuals, has recently been investigating the subject, with the purpose of establishing a factory in the vicinity capable of manufacturing sugar on an extensive scale. President E. L. Metcalf, with Secretary Gardiner Adams and a few members of the club, have lately returned from a week's visit to the beet fields and sugar refineries of Maine, and come back with increased interest in the enterprise. Mr. John Sparrow, of Portland, Maine, by invitation, lectured before a large and enthusiastic audience of farmers and others in the town hall, Franklin. The *New England Farmer* says that "Mr. Sparrow is a practical sugar maker and is well qualified for treating the subject by a life-long acquaintance with the business in some of its forms, both in this and in foreign countries. He was invited here to tell the farmers of Franklin and vicinity what steps should be taken to establish the business of beet-sugar making on a permanent basis."

The speaker, after some preliminary remarks, gave an account of a visit made to Europe during the past year, for the purpose of investigating the beet-sugar industry as there carried on, and the following is an extract from his interesting paper:

"The first factory that we visited in France working green beets was situated at Meaux, twenty miles east of Paris, and here I must freely confess, that on the first day, and upon the examination of the first factory, my enthusiasm and hope of ever expecting anything of the kind in this country was dampened. It is an establishment of vast proportions, with all and every machine necessary to reduce to a minimum manual labor. This is what is called a *central factory*, that is, one from which radiates over fourteen miles of pipes to other localities where the juice of the beets is expressed and run through the pipes to the central works. This is to save transportation in bulk. The consumption of beets per twenty-four hours in this house is twelve hundred tons, and the product from these is from seventy to eighty tons of high quality refining sugars, testing ninety-six to ninety-seven degrees. The value of the product of this house, including the pulp and molasses, in our country, would be one million five hundred thousand dollars for the season of one hundred and twenty days.

After visiting many smaller houses, which encouraged us, we passed on through Belgium, into the heart of what is called the sugar district of Northern Germany. Within this district are the large cities of Braunschweig, Magdeburg, Halle and Berlin, with considerable numbers of large towns and villages. These and all of them have their beet factories and refineries. We were in a factory at Braunschweig, which has been working continuously and profitably forty years. The Germans, although starting later, have reached and passed the French in their better machinery, size of their factories, and closer results in working. The most desirable size for factories, and those which are most found in Germany, are working one hundred, one hundred and fifty, and two hundred tons of beets per twenty-four hours. We visited a number of what are called "Peasant's Factories." They are on the co-operative plan, that is, owned by the farmers alone, who supply the beets and participate in the profits of the house. This system works well, and has proven very profitable; the result of which is that many of the men of Germany who started

raising beets are now among the richest in the country. As with them so with us; to start a factory we want to secure from ten to twelve thousand tons of beets per annum. This amount of beets will require five hundred and fifty acres of land all put down to beets. Then, as rotation of crops is universal, (that is, they only employ the same lands for beets once in four years,) this will necessitate the cultivation of two thousand to twenty-four hundred acres of land to supply one factory using one hundred tons per day, for the season. This can be done, and only done, by a great number of small farmers taking hold of the business with spirit, and it seems to me not a very great task to accomplish. All our lands are good for beets, if for anything, and all that is required is thorough and intelligent cultivation. We have been on lands that have been down to beets every four years for the last fifty years, and yet they don't refuse to give good results.

Some idea of the vast importance of this industry to Northern Germany may be had, when I state (and that from the most reliable authority) that the number of acres put down to beets for the season of 1878 has been 400,000.—Beets raised upon this land are 4,500,000 tons, and the sugar estimated is 450,000 tons, or 900,000,000 pounds, and the sugar, molasses and pulp is valued at $63,000,000.

The price paid to the farmer for beets delivered at the factory or railroad is $5 per ton with the crowns cut off, and less 6 per cent. of weight for earth. The factory also pays to the government the excise tax of $4 per ton. The beets, after being washed and prepared for the mill, are weighed by a government officer, who has an office and scales in every factory. The scales are very ingeniously arranged, self-registering, and a check upon the honesty or dishonesty of the official. This seeming high price for beets is somewhat modified by the drawback allowed on sugars exported, which is about the excise tax, less 10 per cent. for custom expenses.

In this country there is no excise tax on beets; on the contrary, and in favor of the factory, we have a protective duty from 1¾ to 4½ cents per pound on the class of sugars that we are able to make from beets. In view of these facts, I am satisfied that the Beet Company can offer a much higher price to the farmers for good beets than that of last year. The farmers labor under the disadvantage of inexperience in the best and cheapest mode of cultivating the beet, and until further advanced in this line, must be encouraged by the factories at some risk, by receiving the highest possible prices for their beets.

The true and great value of this industry will not be seen until all the conditions connected with it, from the farmer to the factory, are observed and complied with. The farmer raising beets should have sheep to forage upon the leaves and refuse beets at harvest time; and if within carting distance of the factory, he will not neglect the pulp, which, if well prepared, is worth $3 per ton as fodder for cattle. We saw cattle doing the fall plowing, which were fed upon the pulp and one-third chopped straw and a little meal, that looked as well, and were doing as good work, as any that I have seen here. In none of the factories of Germany did we see an accumulation of pulp. It was sought for and taken away as fast as made by the farmers. There are some houses that keep from 50 to 100 head of cattle, which are fed chiefly upon pulp and straw, and made fat in 90 to 100 days, fit for the market.

The quantity of water in beet roots varies from 83 to 88 per cent. But beet-root pulp, which is 20 per cent. of the weight of beets, after it has been pressed, has the same value as the original root which produced it, weight for weight; so that its price may readily be established on the basis of 4½ pounds of pulp being the equivalent of one pound of hay, or 100 pounds of pulp equal to to 22 pounds good hay. If 20 tons of beet are raised to the acre, and if the weight of pulp averages 18 per cent. of that of the beets, we find 8,064 pounds of pulp (equal to 1,774 pounds of hay) to the acre, to be available for the purpose of feeding or fattening live stock. It is estimated that, in growing and harvesting, one acre of beets requires 46 days of human (partly children) and 14 days of horse labor. In the West Indies, one acre of sugar cane necessitates 172 days of human labor.

The machinery of these factories is nearly perfect It takes the beet in the beet-house, upon its carrier, washes it, weighs it, slices it and delivers it to the diffusion vessels, then through all the ramification of the refining process; and finally it is delivered from the vacuum pans crystals of sugar. The whole operation makes as fine an exhibition of the power of mind over matter as one can possibly conceive.

Preparing the Land.—Deep plowing and thorough cultivation of the soil is absolutely necessary. Farmers commence this work immediately after harvest,—plowing deep, cross-plowing and harrowing.

Rotation of Crops is Universal.—That is, beets are grown upon the same land but once in four years. Raw manures are not used on the land designed for beets this year, for the reason that they generate more weeds than the patent manures. They use fertilizers to a large extent, which contain a large amount of phosphate of lime.

Planting.—The furrows are about 18 to 20 inches apart, and the drill drops the seed 8 to 10 inches apart. The object in having the roots so near together is to get smaller beets, which are richer in sugar and more easily kept covered, and the weight per acre is even more than of larger beets.

Cultivation.—The beets make their appearance in from 10 to 12 days, and when large enough to distinguish from the weeds is the time when the full energy and industry of the farmer is to be employed. The weeds must be warred upon at once and kept down; and if any seeds have not germinated, transplanting must be done to make up the deficiency. A cultivator and horse is used in the furrows, and hoe and hand-weeding between the roots. After the first, second and third weeding the work lessens, and the cultivation is made comparatively easy. The roots must be kept well covered, as the crown, or that above the ground, is not rich in sugar, and hence is rejected by the manufacturer.

Harvesting.—Some use a plow, which is dangerous without the most careful handling. A

careless hand will bruise the beets, and such are not satisfactory to the purchaser. By others the earth is loosened with a narrow spade, the root pulled by hand and laid upon the ground. The trimming is done by some with a curved knife with a long handle, while the beet is on the ground; others take the beet in hand, and with a heavy knife sever the crown from the top, and pass the beets into carts. The crown and leaves are utilized by farmers as food for stock.

Preservation of Beets.—Factories using 10, 15 and 20,000 tons of beets in a season, cannot receive more than fifty per cent. of the crop during harvesting. The balance has to be protected for winter use, which is done in silos or pits. The pits are made by digging down in the earth two feet deep by twelve or fourteen feet wide, and of any length, leaving the centre of the floor a little the highest to afford drainage. The beets are then laid in and a wall made of them, inclining inward at the rate of about one foot in three. When the pile is laid to the height of six or seven feet, the whole is covered with earth well patted, to protect them as much as possible from air and frost. The usual method in Europe is to contract with each farmer for the delivery of his beets throughout the season. The best method of preserving the beet is to keep it continually frozen, for freezing does not injure its saccharine properties, but it facilitates the extraction of sugar, probably because frost ruptures the sap vessels more completely than it is possible to do mechanically. In this we are much favored by climate, as our continuous cold weather would enable us to preserve our beets so as to extend our working season well into April or May. The preserving need not disturb us for at least two or three years, nor until there are beets enough raised to supply a factory working one hundred and fifty or two hundred tons per day, over three months. Then, and not until then, the art of preserving need be practiced.

Advantages of Beet-Raising.—Some of the advantages that would accrue to the State and people by the introduction of this industry are: First, to induce our young men to remain among us, by giving them in summer employment as agriculturists, and in winter an opportunity of becoming skilled workmen in the manipulations of the machinery of a refinery and in the science of chemistry. Second, of retaining the value of all the products in the State, as there is nothing required but that we can furnish, with the exception of fuel, and that, even, in some localities may be partially supplied. Third, the power for cattle-raising could be increased a thousand-fold. Fourth, the farmer can raise his crop of beets as gold, because a railroad or factory certificate of delivery will always command it. The price of beets will never be less, possibly more. His acres of beets will net him more than any other crop, and then, when it is known we can raise more than is necessary for one factory, the farmers will have coöperative factories, and participate in their success.

An English scientist and careful observer of crops and seasons affirms that, with a thirty years record, he finds that man's efforts, with all his knowledge of agriculture, and the use of all appliances and manures in the cultivation of crops, with his industry and constant attention, can only be marked as one for success, whereas to Providence or the season he accords four parts for good or ill results. This holds good in regard to all crops, and shows man's dependence upon sun, rain, dry and seasonable weather in their turn, for all his successes and final prosperity. This, he holds, has been the experience of all from the foundation of the world to the present time, and is the inevitable for the future. The German says that, with all men can do, he must still rely upon God, and God only, who makes the sugar in the beets and wine in the grapes, and made man with intelligence to extract them.

There is no industry of Germany which ought to interest the United States so much as the production of sugar from the beet root. The United States (more especially the Eastern and Northern) seem to me to be in every respect as well, and in many respects much better, adapted for its production than Germany or France. Beets containing a large amount of saccharine matter can be abundantly and cheaply raised; and if the great profit of converting them into sugar was fully understood, there would be plenty of capital for the supply of the necessary machinery.

The machinery is expensive, and it requires a large amount of capital to commence operations, but it is doubtful whether there is any branch of industry which would so well repay capital and enterprise. The business cannot well be conducted on a small scale, and this disadvantage has, doubtless, hitherto prevented its being generally adopted in the United States. But when it shall have been given a fair trial it must become a very important interest.

In locating and establishing a factory, there are certain conditions and considerations that must be observed, and abuse and evils that have heretofore attended our inexperienced trials avoided.

A location on a line of railroad is very desirable, and an abundance of cheap water absolutely necessary. The highest quality of machinery should be selected, and that, managed by known experts in the business, will insure satisfactory results; on the contrary, poor and inefficient machinery, worked by merely amateur sugar-makers, will prove, as it always has, disastrous. We made arrangements with the best known manufacturers of Germany and France for any supply of machinery that we may require. But the whole, with the exception possibly of a few machines, can be made here as well at any of our good machine shops, as there, under proper instructions. The only question to settle is, can we import machinery, with the advantage of duty free, cheaper than we can manufacture it in this country? The price of machinery in Germany is cheaper than here. But when we add the cost of transportation, insurance and loss of time, as an interest account I am convinced that at least three-quarters of the full armature of a complete beet factory can and must be made here. The importance of securing the best machinery and the most experienced talent to work it, cannot be overstated.

The high state of success and prosperity to which this industry has arrived is due, and has only been accomplished by the combined efforts

of the best and highest mechanical and chemical knowledge, constantly at work for the last forty years, and it would be worse than folly to pretend to experiment when we have the privilege of transplanting to our country that which would be a complete success from the beginning. In 1747 Magraff and Achard discovered that beets contained sugar, and that 3 to 4 per cent. of sugar would warrant the prosecution of the industry. We may judge of its importance and advance when in 1867 and 1868 the yield reached 8 per cent., and in 1877 and 1878 it was 9 and 10 per cent.; and I have no doubt that, with the best of beets and close working, a much higher yield may be obtained, and even 12 to 14 per cent. is not too high to be expected and realized. I consider it not wild or visionary to state that in five years we should be able to supply our own sugar and a surplus for export. In Germany 32 of these factories were built in one year.

Much credit is due to the gentlemen of the Maine Beet Sugar Company for their courage, industry and generous outlay in the enterprise last year; and so confident are they of final success that they are making ample arrangements for a large production this year. They made last year 180,000 pounds of white sugar; this year, with the generous aid of the farmers, an average crop, and the addition of improved machinery, they hope to make 1,500 tons, or 3,000,000 pounds. If successful in this, the thing is accomplished, and our new industry established. Ten factories would supply the wants of Maine, and something over.

You should bear in mind that you are not merely working for an individual or company, but that you are demonstrating a principle or fact, which, in my judgment, will eventually turn to your great advantage. The Germans think that Providence has done more for us than we have improved or done for ourselves—that is, that we are not making the best of our opportunities; and if they had but a part of our lands, they would raise sugar to supply the world. Napoleon said, speaking of beets: "Respect me, for I improve the soil; I make land fertile, which without me would be uncultivated; I give employment to laborers, who otherwise would be idle; I solve one of the greatest problems of society; I organize and elevate labor."

At the close of the reading, the speaker exhibited plans of buildings and machinery for a factory capable of working up one hundred tons or more in a day of 24 hours, and traced the course of the beets from the great storehouse, where they are taken on an endless belt to the washing tanks, thence to the slicer and diffusing vessels, next to the presses, where the juice is separated from the pulp, then to the vacuum or evaporating pans where the raw sugar is produced.

After the lecture questions were asked by members of the club, in reply to which the speaker said that, owing to the duties on sugar imported, he could see no reason why there should not be a margin of profit equal to twenty-five to thirty per cent. on the manufacture of beet sugar in this country. Raw sugar is now worth from seven to seven and a half cents per pound; it can be made in Europe for four and one-half cents, and there is no reason why we cannot produce it here at equally low rates. The importance of the industry, in a national point of view, is by no means small, when we remember that the sugar in all well-to-do families costs more than the bread, and when we remember, too, that the beet-fields of France and Germany produce more sugar per acre than the best cane fields in the world. According to recent statistics, the consumption of sugar per capita in the United States is 42 pounds. In 1876 all the cane sugar made in the United States amounted to only 70,000 tons, while the present consumption is probably not less than 750,000 tons, requiring an importation of 680,000 tons at a cost in gold of $100,000,000.

At a meeting held in the evening after the lecture, at the house of President Metcalf, steps were taken towards the organization of a coöperative beet sugar company in Franklin, with a capital of $100,000, in shares of $1,000,—no single individual being allowed to take more than three shares. If the enterprise succeeds, it will prove of great benefit to the farmers within reach of the factory. All that seems needed is sufficient energy, intelligence and capital.

Our French Letter.

Messrs. Editors American Farmer:

The horse biscuit has become a necessity during a campaign, and was much employed by Germany and Russia pending the French and Turkish wars. To contain sufficient nutritive matter in a small volume is the object of the biscuit, so that one pound will be equivalent to five of oats. The biscuits are flat cakes, strung on wire, and a horse could transport enough for itself for five days. Some carriers have been experimenting with the biscuit in this country and appear to be satisfied with the results, not only in point of economy, but in the health and vigor of the horses. The Omnibus Company is reported to be preparing to test the matter on their cattle by an "American biscuit," composed of maize, oats and a little barley.

M. Guilbert, of Saint-Omer, is a brewer, and, along with his friend, has obtained great success in cattle-feeding by mixing malt, roughly prepared from the small or refuse barley, with the grains, roots, &c., ordinarily cooked for stock. The latter devour it with the same avidity as those fermented matters,—pulp, grains and trench-preserved food. The alcohol flavor the mass possesses, sharpened by the presence of carbonic acid, is grateful to the palate.

Dr. Rœser draws attention to dead farm animals. Primarily, he states there is no contagion from bodies in a state of putrefaction—only offensive odor; but an animal having died of a disease can communicate it previous to decomposition setting in. He goes still further by avowing that even the flesh of diseased stock can be eaten, if previously cooked to destroy

the virus, and that when mixed with meal, vegetables, &c., form a dietary at once healthy and nutritive for fowls and pigs. In animals that have succumbed from a malady, the blood has a greater tendency to become rapidly putrid. In apoplexy, for example, the blood becomes septical in 24 hours, and its poison is intensely communicative, as M. Pasteur has shown. M. Bouley & Nocard have laid down that the flesh of sheep as food in no way suffers from a pulmonic malady. Measly pork ought to be interdicted, but the lard if melted down can be employed for food or industrial purposes. Trichnine pork and Algerine beef affected with tœnia, Dr. Rœser says may be utilized if well cooked. But the flesh of dead-born animals, as calves, are best employed as manure. As a compensation, the flesh of cattle dead from typhus, or sheep from the rot, may be consumed in the flesh state. Dr. Rœser asserts half of the sheep sent to be slaughtered are affected with phthisis; but we only complain when the meat is bad from being too lean. The blood of animals which have died of charbon is dangerous, the pustules being very malignant, so much so that 19 out of 20 persons working the bodies suffer. Glanders in the last stage form a malady for which there is no remedy. Yet Decroise has partaken of the flesh of glandered horse cooked in several manners with impunity. When given in a raw state to the animals in the zoological gardens no bad consequences ensued. But one can swallow the venom of serpents with impunity, provided there be no abrasion of the skin. The carcass of an animal when newly dead ought not to be rejected; after the hide, horns, hoofs, &c., have been removed, it should be cut up, well boiled and set aside for the poultry-yard and the stye. A bad odor is disagreeable rather than dangerous, as the men employed in knackers' yards are famed for their good health and their children are proverbially robust. The blood is valuable: In Belgium when a horse or a cow is not expected to recover it is led to a field, the veins are opened, and then compelled to march, and thus "liquid manure" the soil till it drops. In France the practice is less barbarous: the animal is first knocked on the head and then bled.

Blood when dried and solid keeps better, and, being less soluble in water, is more valuable as manure. Generally the blood is sold to clarify wines and syrups, or to make Prussian blue and albumen. Indeed, Pasteur sees no reason why the blood ought not to be used as much for food purposes as that of the pig's The fat of dead horses—on an average the yield is 50 pounds—ought to be set apart. The intestines of farm animals are employed to make musical cords, and, when blown, to receive alimentary substances; the debris are set apart to produce grubs for pheasants, poultry, &c. In the cooking of the flesh of dead animals a little sulphuric acid mixed with the water will not be amiss.

There are several special or technical schools in France, apart from those ordinarily devoted to agricultural education in its several degrees. The veterinary colleges of Lyons, Alfort and Toulouse are famous: The first and second were founded in 1761 and 1766; up to then, farriers were alone empowered to treat horses and other stock. The number of pupils at these colleges is 700, and after four years study they receive a diploma. The expenses of these establishments amount to nearly one million francs, of which one-third is covered by students' fees. It is at Nancy where the head school of forestry is placed; it has three minor branches, where the pupils enter young. At Rambouillet there is a training school for shepherds, and at Leizardeau for drainage and irrigation, all well supported by the State. The National Agronomical Institute of France is the crowning of the edifice, and is in Paris. Its chief is M. Leconteux, who combines all the qualities to be desired; he is the friend of all modern ideas and the practiser of their application; he is distinguished as a scientist, and as a real working farmer on his extensive estates; he is the foe to everything that is empirical, and the friend of private effort and dependence on self rather than on the government.

In the Cantal a cheese factory—*fromagerie*—has been established, where the milk is worked on the cold or Danish system; the rennet, prepared by the system Hausen, is added to the fresh milk, and in 24 hours the curd is placed on tables, salted, put into moulds and pressed. Each cheese weighs 112 lbs., takes 4 months to ripen, and fetches half a franc per pound; the "whey," if it may be so called, yields 1 per cent. of butter. The farmers bring their milk twice a day during the four months ending 1st October, and are paid at the rate of three sous per quart; the whey is returned after the butter has been extracted. One quart of rennet is employed for every half ton of cheese.

A farmer states that he eradicates couch grass by not letting it grow; and accomplishes the latter by harrowing down the leaves—killing as it were the lungs—the moment they successively appear.

Scattering a few carrots over a garden of a humid night will attract the snails in large quantities an old tub filled with a solution of sulphuric acid will finish them. F. C.

Paris, October 7th, 1879.

On the Pea Fallow.

The value of the pea, in the improvement of the agriculture of the South, has long been a favorite topic of discussion in these pages, and many practical papers have been published by us from correspondents upon the subject, especially in Virginia; and we now commend to their attention the following brief advice from Mr. Hy. Fitzhugh, of Stafford Co., Va., which we find in the last number of the *Fredericksburg Recorder*. It embraces, as in a nutshell, the whole pith of the question involved, which was: "In what does the best system of agriculture in Virginia consist?" As the time for action is now at hand, we commend the advice of Mr. Fitzhugh to the consideration of the readers of the *American Farmer*. In reply to the question he says:

"In deep and good plowing, in thorough pulverization of the soil, and in manuring. Now that the wheat seeding is over, the corn-stubble land should be deep and well plowed—say nine (9) inches, and, if possible, subsoiled equally as deep for the next spring crop of peas. The frost of winter will pulverize the land and put it in the very best tilth.

"There is no crop that requires the soil to be so well tilled as the pea. The land should be deeply stirred, so that the long tap roots can go in search of food and moisture. In the spring—about the middle of May—one hundred pounds (100 lbs.) of plaster to the acre should be sown and plowed in to the depth of six (6) inches. When the peas are all up, one bushel of plaster to the acre should be sown on them. Gypsum or plaster is of the greatest benefit to this crop. The tap roots will penetrate the earth in search of it, and consequently will stand the drought of summer much better. The thin places should be manured with a good application of blood and bones plowed in to the depth of six (6) inches. This manure is rich in the phosphate which peas, clover and wheat delight in, and will make a far heavier growth of peas, which in my opinion is the best part of this green crop for manuring purposes. Therefore they should not be grazed or picked off. It will pay best on the wheat crop, and also greatly improve the land, which is of vital importance. Two (2) bushels of peas to the acre is about the correct quantity. If sown thinner, the grass and weeds will take possession of the land ere the pea has obtained any growth. The proper time to turn them in is when the vines begin to turn yellow, the leaves commence to fall, and from half to two-thirds of the peas are ripe. They should not be plowed in too deep; six (6) inches is sufficient, provided the vines can be all covered at this depth, because when put in too deep the growing crop of wheat cannot obtain the desired nourishment. HENRY FITZHUGH."

Top-Dressing Grass Lands.

We copy below, from the *Massachusetts Ploughman*, some remarks upon this subject, which we can heartily endorse and commend to the practice of our farmers as sound doctrine:

Whatever may be thought of plowing in manure for hoed crops, grass lands must be top-dressed, and now is the time to attend to this business. If the dressing is put on before the fall rains are over, it will give a good growth to the grass this fall, and start it up vigorously ten days or a fortnight earlier in the spring. European experience has long favored keeping lands in grass for a succession of years by top-dressing, and the practice is becoming more and more general in America, and especially in New England. It is found that the grass from these old and well-dressed meadows and pastures is finer and more nutritious. One cause of this is the greater variety,—a dozen, and sometimes twenty, varieties being found on old meadows, and seldom more than three or four on new-stocked land. Stock of all kinds like a variety, and it is poor policy to feed horses on timothy alone, as many do. A horse fed on timothy alone will snatch at a lock of clover, or even at a Canada thistle, as at a sweet morsel. The easiest way to furnish a variety of forage is to top-dress the meadows and pastures once in three or four years—and oftener if the compost can be obtained—when species after species of grass will put in an appearance, springing up as if by magic. Among other kinds June grass (Kentucky blue) will come in on all calcareous soils, than which there is no better for grazing, unless it be orchard grass. It also makes an excellent hay if mowed in June. Farmers object to it because the crop is light; but mixed with timothy, red-top, fescue and ten or a dozen other varieties—as it is on old and well-fed meadows—the first crop is large, and in August another equally good one will be ready for harvesting. This rowen crop is esteemed by many superior in quality to the first, and for milch cows, sheep and young stock of all kinds, hens not excepted, we have no doubt this is the case.

Another cause for the greater nutriment of the grasses on top-dressed lands, is that such grasses have a greater abundance and variety of food. They are nutritious for the same reason that a stall-fed ox is fat. They are well fed and the food is placed where it can most easily be absorbed by the roots, and assimilated by the plants. It is a mistake to suppose, as many farmers seem to do, that grass is grass, and that one spire of timothy is as good as another spire of the same weight. There is as much difference between the value of different blades of the same species of grass as between different cows of the same breed, and this difference is mainly due to the different modes of feeding. Of course there is a constitutional, hereditary difference in grasses of the same species, as there is in animals of the same breed, for we have as much faith in thoroughbred vegetables as in thoroughbred animals; but let the inferior, whether vegetable or animal, be fed and cultured rightly for a succession of years, and it will rank No. 1. If grass land is left unfed, the grass deteriorates in quality as well as quantity, till finally the best varieties run out entirely, and scarcely anything but a "mouse-ear" remains. In place of the grasses come in weeds and bushes, some species of vegetation that can live on poorer food, and that has longer roots and can forage to a greater depth. This is nature's mode of restoring exhausted lands to new life. When an old pasture begins to grow bushes and trees, it begins to recuperate, for the roots of the new vegetation bring up saline matter from a depth to which grass roots do not penetrate, and the foliage also absorbs from the air a vast amount of organic matter. By the annual deposit of this foliage the soil is in a few years restored to its virgin fertility. It is a shame to any farmer, however, to allow his grass lands to become so exhausted that they will produce only weeds, bushes and trees. By frequent top-dressing the most nutritious grasses can be kept growing—certainly on strong clay loams—for an indefinite term of years, and these grasses will choke out daisies, johnswort, and every pestiferous weed. Grass is the great

crop of New England, and we hope the farmers of this section will cherish it by liberal top-dressing.

North Carolina State Agricultural Society.

The fair of this society, like nearly all the other State shows this season, was a complete success under the guidance of an old friend of ours, Col. Holt, who was re-elected president for another year by acclamation. The evening meetings of the society, the proceedings of which are published in the Raleigh papers, forcibly remind us of the days of the old Maryland State Agricultural Society, when, after the closing of the fair for each day, the evening meetings for discussion were held in the city, and many of the prominent farmers of this and adjacent States were present, thus not only showing their superior stock, but partaking in the discussions of the society upon subjects of interest to agriculture, the reports of which the senior editor of this paper faithfully reported in the old *American Farmer*. Of course, the topics discussed at the meetings of the North Carolina Society were mainly of a local character, but all the proceedings tended to show that the watchword with the honest old North State was "forward" in the march of improvement.

The orator for the occasion, Geo. H. Snow, Esq., in the course of his address, remarked:

"Within the past ten years our people have thrown off their lethargy and entered upon the great march of progress with a determination to deserve success, if not to command it. We have profited by the past, and we now see educated labor in the South, erecting costly edifices and opening to the commerce of the world the Mississippi and our other great rivers. But is this all that can be done? Look at the great products of the South—cotton and tobacco. The cotton is raised by the labor of the South, and it is shipped in the greater part to the factories of England and the North. It is then woven into cloth and shipped back to the Southern people, with a large profit to the manufacturer. Why can this not be done at the place of production, and the profit saved to our people? Look at Georgia giving employment to her people by factories of all kinds, thus placing her the foremost State, the Empire State of the South, in material prosperity. And cannot we in the State of North Carolina, yea, in the capital of the State, with all its great water power, erect factories both for cotton and tobacco, give employment to our people, and realize the profits we annually throw away?"

Here is the keystone of the success of the South: instead of raising the raw material of cotton, wool, tobacco, &c., and shipping to other regions to be manufactured and returned to them at enormously enhanced prices, they now begin to realize the fact that the great profit should enure to themselves and the people of their own State, to enable them to secure that independence and comfort to which they are entitled in their salubrious homes.

Productions of Agriculture in the Census.

We have received from Gen. F. A. Walker, Superintendent of the Census, who is aiming to secure greater accuracy and uniformity in the agricultural statistics to be compiled for the tenth census, a circular setting forth the aims and wishes of the bureau with regard to the method of arranging such statistics. As the enumeration of the census of 1880 commences on the first of June and closes on or before the 30th, all the crops which are gathered once a year will fall pretty clearly on one side or the other of the dividing line. Thus the cotton crop reported in the census will be that of 1879, gathered in the fall of that year; while the wool clip or "wool crop" will be that of the spring of 1880, except in portions of California and Texas, where both a fall and spring clip are secured. For certain of the productions of agriculture, however, there is no harvest in the usual sense of that term; but the product is gathered week by week or day by day as it matures. Milk, butter, cheese and meat fall into this class. In view of the requirements of the law, and of the great importance of accurate statistical information relative to agriculture, it is deemed highly desirable that farmers should prepare themselves in advance to give the information with promptness and accuracy. It is urgently recommended, therefore, that agricultural journals and the officials of agricultural societies and clubs give publicity to the announcement, and that all persons engaged in agriculture who shall receive this circular or see it in the public prints make notes from time to time of the quantities and values of their several crops gathered, and the number of acres of land planted, and produce of the dairy, vineyard, orchard, etc., in order that their statements when made to the enumerators may be of the highest possible value.

CLOVER alone, from an excess of water in the plant, has a tendency to make butter too soft, and consequently to injure its keeping qualities; but mixed with timothy, in the proportions above given, it adds to the butter sufficient moisture, which is lacking where timothy alone is given. The result, of course, will be somewhat modified by the nature of the soil upon which the grass is grown. A clay-loam soil, well-drained, will produce the most satisfactory results—a sandy soil the least. But whatever may be the nature of the soil, it is desirable that cows be pastured upon high, well-drained land, rather than upon low, swampy soil.

Live Stock.

Principles of Breeding.

A very able and interesting address upon this subject was delivered before the South Carolina Agricultural and Mechanical Society, by Gen. Johnson Hagood, the main object of which was to encourage the cotton planters of the South to raise at least stock for their own use. In the course of his remarks, the speaker made some statements in regard to the general principles of breeding, which we extract from the address as published in the *Charleston News*, and which will be found of value to our readers who are interested in the raising of good stock:

Observation and experience have established, as the fundamental rule of breeding, that "like will produce like, or the likeness of an ancestor." When there is a great uniformity among the members of a species, as in long-established and pure breeds, the divergence from the average type is small. With Brahmin cattle, or broad-tailed or Merino sheep, the coupling of parents always produces a Brahmin, a broad-tailed or a Merino; and the divergence is generally due, where it occurs, to the condition of the parents and the treatment of the offspring—circumstances the breeder can control. But in breeding grades the tendency is constantly to recur to one or the other of the original types—preferably, however, to the higher type when there is inequality in the first cross. Selection should therefore be constantly made of the female grade to be bred from, and grade sires, when it can be avoided, should not be used; for the superior influence on the progeny of the male is beyond dispute. A persistence in this course for generations will at length establish a breed with all the characteristics desired, and then the members may and should be inter-bred to retain these qualities. It follows too from these facts that numerous crosses should be avoided. Make the one cross that is desired, and then breed back to the original type you prefer. Indiscriminate crosses will result in a stock of animals whose progeny will be as varied as there are crosses in the blood, and it will be impossible beforehand even to surmise which ancestor is to be perpetuated. This tendency to breed back, while the foundation upon which the breeder relies for keeping up the excellence of his stock, is also at times the greatest difficulty in his way; for the bad qualities and peculiarities of the ancestor are as apt to be recurred to as the good. Madam Touson, a celebrated thoroughbred brood mare, is said to have been a bay with star in forehead, and this singular peculiarity: her ears when at rest were in position like other horses, but when thrown forward fell horizontally, and the points nearly touched. My father bred a filly eighth in descent from this mare, in which the peculiarity of the ears for the first time recurred. The filly, too, was a bay with star in the forehead, though her four immediate progenitors were chestnuts, and that color had become a distinguishing mark of the family. In the last century Diomed distinguished himself upon the turf and in the stud in England. Some of his colts proving obstinate and restive, he went out of fashion as a stallion, and was sold to America, where he was bred to imported Castianira, who was then blind. The produce was the renowned Sir Archy. In Sir Archy, and, as far as I am informed, in his best son, Timolson, there was no trouble with temper or eyes, though the Archy stock when in bred are said almost always to have shown in their eyes the latent taint. With Boston, the best son of Timolson, both the bad eyes and bad temper reappeared. Lexington, Boston's best son, was blind at five years old; and of Lexington's get, bad eyes and bad temper, the one or the other, or both, seem to mark those which have excelled most either on the turf or in the stud. Thus, in the best strain of race-horses in America, the merits and demerits of its ancestry are alike perpetuated.

The prohibition of the moral law against incestuous intercourse in the human family has led to prejudice against it with animals. Among all gregarious animals, however, the strongest and most courageous male retains possession of his herd for two or three generations; his daughters and granddaughters have assumed the duties of maternity before a younger and more vigorous rival has displaced him. It is generally thought by the best breeders that, provided we do not carry in-and-in-breeding beyond the limit thus indicated by nature, it is not injurious, but on the contrary may be sometimes advantageous in intensifying the qualities of the strain. A neighbor of mine bred his farm horses in this way. He had a horse who was sire and grandsire of his mate in the same team. With the two animals before me, I could see no depreciation; and their general similarity in appearance was remarkable. I bred a fine black and tan smooth haired terrier bitch to a very superior tan dog of the same variety, and reserved a tan bitch whelp that proved small, timid and without character. The latter bitch was then bred back to her sire, and two tan dog whelps reserved, which, when grown, exhibited the size, courage and all the fine qualities of the original dog. They were so much alike in appearance that although they were pets and my daily companions for a length of time, if unexpectedly called upon I could not quickly tell Billy from William, (for so they were called,) nor William from Billy.

A directly incestuous cross is found in the pedigrees of some of the most noted horses on the turf; while others have been the produce of brother and sister. The latter cross produced Henry, the competitor of Eclipse in the four-mile contest, which is still regarded as one of the greatest performances on the American turf. His sire and dam were both by Diomed. Henry, with overweight for his actual age, won the first heat; and, in the opinion of John Randolph, Wm. R. Johnson and other turfmen, could have won either of the succeeding heats had he been differently jockeyed.

I think in-and-in-breeding unlikely to do damage when both animals are good; and far better than an out-cross from an inferior animal. Twice, however, is a limit beyond which no

breeder has ventured a recommendation to go. Twice in and once out is the accepted rule.

One of the most singular of the recognized principles of breeding is the influence of imagination in the dam, and of strong temporary nervous influence in either parent. The influence of the imagination seems to have been known for a long time, as instanced in the incident of Jacob's sharp practice upon his father-in-law, and many curious instances in modern times have been recorded, when it has affected color. One exhibition of the effect of imagination very annoying to the breeder is the becoming epidemic in herds of abortion. With mares it is unsafe to permit one to foal in presence of another who has not reached her full time.

A singular instance of the effect of a nervous shock upon the dam occurred with imported Marigold, the property of Mr. P. G. Stoney of this State. When pregnant with her second foal she received a severe cut in the eye from an oyster-shell thrown by a little negro. The eye was not put out, but a permanent scar remained. The foal she was then bearing was dropped at its full time with but one eye. Her two succeeding foals, one of which was the celebrated racer Jeff Davis, also each came with one eye. Afterwards she brought two colts without this defect.

Having proposed to confine myself to breeding for plantation purposes, and having recommended to the planter the breeding of grades, I will, in conclusion, merely mention some of the other principles of breeding which are of importance, chiefly when pure breeds are the object. These are generally stated as follows:

First. Any variation from the established type in the form, disposition or habits of a species may be perpetuated and intensified by careful selection and use. Were it not for the existence of this law there would be no improvement in a breed once thoroughly established.

Second. Hereditary qualities are liable to be strengthened or weakened by use or disuse. The thoroughbred, the trotter or the pointer whose families have not been trained for two or three generations, and who himself is not trained, will fail in most cases to transmit his peculiar qualities in their original excellence.

Third, and the last to which I shall refer.—The influence of the first impregnation seems to extend to subsequent ones. This is especially the case in the equine genus. In the College of Surgeons in England is preserved a series of examples where the markings of the male quagga when united with the common mare are continued clearly for three foals subsequent to that of which the quagga was the actual sire. So thoroughly is this principle recognized by breeders for the turf nowadays that few would venture with confidence upon a mare whose first conception was from the embrace of a jack, or even a cold-blooded horse.

THE Kansas State Agriculsural College is in the hands of the farmers of the State, with a faculty that proposes to work on the new departure in education, whith makes all ornamental secondary to practical and useful education.

Contagious Diseases of American Live Stock.

We take the following extracts from an address to the American Agricultural Congress, Rochester, N. Y., by N. N. Paren, M.D., V.S., of Chicago, Ill.:

Glanders and Farcy.

Glanders and farcy have prevailed and still prevail to some extent here and there in all of the Western States and Territories, among horses and mules; more so than is generally known or suspected. The importance of stringent legislation for the extinction of these twin diseases is evident to any one at all acquainted with the dangers attending their unlimited spread, and their total incurability.

Pleuro-Pneumonia.

Among horned cattle the contagious pleuro-pneumonia has, during the past year, thanks to the British Government, received a *forced consideration* by our Government, and some headway has been made towards its extinction; but, as yet, no laws have been enacted by Congress for the purpose of preventing its spread from one State to another, or over the whole United States. This disease has been in our country a considerable number of years. If proper means had been adopted at the time of its incipiency, we should never have seen it again, except by new importation; and until proper measures are taken, or Congress enacts laws in relation to trade and traffic between the States of the Union, we shall continue to suffer from it. One of the greatest sources of the spread of this disease is the unrestricted trade and traffic in cattle. Were proper precautions adopted in this direction, within certain limits, and within each State, and a thorough stamping-out process inaugurated, we should soon cease to hear of the contagious pleuro-pneumonia. The invasion of a district or country by pleuro-pneumonia contagiosa is insidious. The disease commonly escapes observation as it steals into a farm or country, and is consequently perhaps more destructive than any other known epizootic disease. Wherever the diseased animals have been slaughtered early, as in some European countries, the disease has not spread; but where months have elapsed before measures have been adopted, it has insinuated itself into many parts of the country, and has proved most destructive.

I feel constrained to repeat that the immense losses among live stock in this country is greatly to be accounted for in the absence of a sufficient number of men who have been thoroughly and scientifically educated in this branch of medical science. That the great multitude of intelligent farmers and live-stock owners in America should be obliged to contend with quacks and charlatans of the lowest description, while all other civilized nations (some of them as far back as a hundred years ago) have been provided by their Governments with amply-endowed veterinary colleges, is beyond all sound reasoning—is, in fact, nothing less than a national disgrace, and justly merits the derision of other nations.

Guenon System of Selecting Cows.

We have received from the publishers, J. M. Stoddart & Co., Philadelphia, a copy of a new work—"How to Select Cows; or, the Guenon System Simplified, Explained and Practically Applied; by Willis P. Hazard, Esq.," a gentleman well known among the dairymen of the United States, and who was appointed by the Governor of Pennsylvania secretary of the commission authorized by the legislature of the State to investigate the value and practicability of the Guenon system. Mr. Hazard says in the preface, that in the investigation confided to the commission by the State "he found there was with many a superficial knowledge of the subject, with others enough acquaintance with the system to destroy their faith in it, and with nearly all a desire to obtain sufficient practical knowledge of the system to enable them to judge understandingly and to practice it,"—and with a view to fill these wants, he was induced to undertake the explanation of the system, which he has very ably performed in the little volume of some 82 pages now before us.

This system received our attention many years ago, when Guenon first introduced it to the public, and, as our pages will show, we had such faith in its general correctness as from time to time to induce us to recommend it to the consideration of our readers. Mr. Hazard professes to have simplified and explained the system, so as to enable it to be practically applied by the general reader; and as far as we can judge of his performance, we think he has given such examples and explanations, with the aid of nearly 100 illustrations, photographed from Guenon's engravings. We cannot afford space at present to give such extracts from the work as will be effective to the general reader, but the low price (50 cents) at which it is offered to the public should induce every one even in the smallest manner engaged in the breeding or management of cows to procure a copy of it.

The author introduces in an extract "from an exhaustive and admirable treatise on the Ayrshire breed of cattle, by Jno. D. W. French, of North Andover, Mass.," the substance of the views of Pabst, a German farmer of large experience, and Magne, the French writer, as to the simplification of the method of Guenon, in order to render it of greater practical value; also of Geo. E. Waring, Jr., on the great advantage of understanding the escutcheon, especially in the selections of the Jersey breed. The comments on the same points, by Mr. C. L. Flint, in his work on milch cows, are likewise given, as well as those of other well-known dairymen. We give what Flint says, as embracing the ideas of the others:

"These classifications, adopted by Pabst, Magne, and others, appear to be far more simple and satisfactory than the more complicated classification of Guenon. Without pretending to judge with accuracy of the quantity, the quality or the duration which a particular size or form of the mirror will indicate, they give to Guenon the full credit of his important discovery, as a new and valuable element in forming our judgment of the milking qualities of a cow, and simply assert, with respect to the duration of the flow of milk, that the mirror that indicates the greatest quantity will also indicate the longest duration.

"My own attention was called to Guenon's method of judging cows some eight or ten years ago, and since that time I have examined many hundreds, with a view to ascertain the correctness of its main features, inquiring, at the same time, after the views and opinions of the best breeders and judges of stock, with regard to their experience and judgment of its merits; and the result of my observations has been that cows with the most perfectly developed milk-mirrors or escutcheons are, with rare exceptions, the best milkers of their breed, and that cows with small and slightly developed mirrors are, in the majority of cases, bad milkers.

"I say the best milkers of *their breed*, for I do not believe that precisely the same sized and formed milk-mirrors on a Hereford, or a Devon and an Ayrshire, or a native, will indicate anything like the same or equal milking properties.

"It will not do, in my opinion, to disregard the general and well-known characteristics of the breed, and rely wholly on the milk-mirror; but I think it may be safely said that, as a general rule, the best marked Hereford will turn out to be the best milker among the Herefords, all of which are poor milkers; the best marked Devon, the best among the Devons; and the best marked Ayrshire, the best among the Ayrshires; that is, it will not do to compare two animals of entirely distinct breeds by the milk-mirrors alone, without regard to the fixed habits and education, so to speak, of the breed or family to which they belong."

Autumn Treatment of Sheep.

The essentials to successful sheep husbandry, says the *Live Stock Journal*, cannot be too forcibly presented, or too frequently reiterated. Each recurring season brings its history, adding others to the already long list of those who have come short of the success to which they too confidingly aspired. The source of these disappointments will, in most instances, be found in the disregard of some fundamental condition—some error of omission or commission into which the flock-owner has fallen by reason of faulty teaching or imperfect judgment. While certain avenues may be open to experiment; while the breeder of experience, as well as the novitiate, may find excuse for

pausing upon the threshold of some contemplated venture, there can be no valid excuse for omitting the fullest possible preparation for the comfort and thrift of the flock through the trying vicissitudes of the fall and winter. Here is no field for conjecture. In the most rigorous latitudes the flock-master who now withholds dimes from his sheep but robs his own pockets of dollars in the near future.

The present season is peculiarly well adapted for placing flocks upon the winter in the best condition. The past summer has been favorable; and a bountiful corn crop insures the best of feed, at low prices. Sheep and wool are worth more money than at any time for some years, with no corresponding advance in the price of cattle and swine. This combination of fortuitous surroundings opens before the flock-owners of the old and new West especially an opportunity for early and profitable returns for all the time and money they can prudently bestow upon their flocks. High rates for grain transportation will combine with a heavily-stocked market to keep the price of corn within the economical reach of those who have not enough for their utmost needs.

With the first frosts some corn should be fed, no matter how plentiful the supply of grass may be, and this gradually increased until the desire for it seems fully satisfied. If thus cautiously increased, and fed after the sheep have been on the pasture for several hours, the most satisfactory results will follow the feeding of corn in what may be considered liberal quantities, until a maximum of two and a half or even three bushels per day to each hundred sheep has been attained. The necessity for this amount may not exist, as straw and other fodder may be had in greater or less supply; but the average feeder is more apt to err on the side of deficiency than by an oversupply.

Shelter from the cold and driving rains of late fall and early winter is almost as necessary as liberal feeding. If circumstances do not warrant the construction of permanent shelters, pretty fair substitutes may be had by thatching with straw or cornstalks a temporary frame of forks and poles, opening only towards the south. Where even these cannot be had, some good will result from placing the flock in a sheltered valley or near a grove, where the undergrowth of brush will furnish some protection, though poor it be, against the chilling winds as they pierce through a soggy fleece.

It is now that the successful flock-master lays the foundation for his success through the ensuing winter and spring. A flock fairly started upon the threshold of winter has passed more than half its dangers. The strength gathered through the milder months will enable it to safely endure vicissitudes under which less favored animals would succumb. The highest profits will be found by those who feed with an unstinted hand, and otherwise surround their flocks with the completest comforts consistent with their surroundings. This has ever been the rule; and no one need hope to profit by its exceptions.

A medium-sized sheep, with plenty of lean, is what is prized by city butchers.

Raising Sheep.

There is every evidence, as our pages have frequently of late shown, that the farmers of this country are being awakened to the necessity and economy of raising sheep, both for mutton and the wool; and it is fortunate for them that the best breeding animals for either purpose are now becoming very ready of attainment, by importation and careful scientific breeding. In alluding to the profitableness of this species of live stock, an English journal, the *Farmers' Monthly Agricultural Record*, presents some facts which are similar to others frequently given in our own journal. It says:

We hear of reports daily where sheep on the farm give grand records, one of the best of which we gather from an American exchange. In 1866 E. and C. Brown, brothers, entered into an agreement to buy 15 good Cotswold ewes, continue the partnership for ten years, retain the ewe lambs and sell the wool and male sheep each year. The original ewes cost them $158 cash. July 15, 1876, they had sold $4,800 worth of wool and sheep; last year they sold $1,500 worth, this year $900; and now they have on hand 190 head of sheep, that $2,800 cannot buy. The net sum of $10,110 realized by ewes and their produce is equal to lending money at nearly the astonishing rate of 630 per cent. per annum. This must, of course, be taken as of the past period, when combing wool was bringing high prices, and Cotswold sheep more than at present; but nevertheless nothing even now pays as well as sheep on the farm.

The *Western Agriculturist* says that "A. T. Stewart, Monsterrat, Johnson Co., Mo., has had remarkable success in breeding. He got over 60 lambs from 31 ewes; five had three lambs each, twenty had two each, and the balance had one each."

There is no doubt but that sheep husbandry possesses far more interest for the average citizen not immediately engaged in it than does any other branch of live-stock culture. This for the reason that both food and raiment enter into its consideration. Men eat mutton from choice, while they wear woolen clothes from necessity. The double demand thus made upon the products of the flock brings its economical culture and thrift home to the fireside of every household. These demand wool and mutton of good quality, and the successful flock-owners of the future will be those who appreciate these facts and adjust their business accordingly.

Some people claim that it is better to keep sheep than cattle, and certainly we must admit that the shepherd does possess advantages over the herdsman, as follows:

In the first place a stock of sheep cost less than one of cattle. A farm which will carry twenty cows will carry about eight times as many sheep, and to stock a farm with twenty cows and necessary fixtures will require an outlay of a large sum of money. An equivalent number of sheep—say one hundred and fifty—can be purchased for about half the sum.

Again, a flock of sheep demands much less care than a herd of cows. The latter must be milked daily, and the work of the dairy in making butter and cheese is constant and laborious, demanding also skill of a high order to make it eminently successful. Then sheep will live and thrive where cows would starve or at least make poor returns. These nimble animals will climb over rocks and ledges where cows would not venture, and almost every herb that grows, even down to Canada Thistle, suffices them for food. Pastures are greatly benefitted by being cropped by sheep. They not only keep down the weeds, but have more fertilizing material in their droppings than do cows, besides the manure of cows and also pigs resists decomposition for a much longer time than that of the sheep and horse,—the latter being dryer than the former, and decomposing more readily in the soil.

A flock of sheep always multiplies much more rapidly than a herd of cows, and this is especially true of the large mutton breeds, which often produce twins. Sheep also fatten more easily than cattle, and when slaughtered they furnish not only meat, but wool as well.

What can be Done with Well-bred Cattle.

A correspondent writes to the *National Live Stock Journal:*

I herewith send you a sketch of a car-load of two-year-old steers, 16 in number, which were fed by Mr. Stephen Child, of Farmingdale, and which weighed this morning, after standing 12 hours without food or water, 1,527 lbs. each. They were remarkably smooth, and a very even lot, with good top and bottom lines. They were sold, some months ago, to Mr. Samuel W. Watts, at 4¼c. per lb., gross weight, and will be in the Chicago market to-morrow.

When we consider that these cattle were bred by several farmers, collected together without any special aim to make extra heavy steers, and purchased by Mr. Child, last October, (with 14 others,) at $29 per head, and allowed the range of pastures and stalk-fields until January 1st before being fed any corn, I think their weight remarkable, and a good evidence that Mr. Child knows how to feed cattle. And further, it has proved a very profitable investment, for the difference between $29, the cost, and $72.53¼, the selling price, certainly leaves a very fair margin for profit.

They have had the range of good pastures for the past two months, besides a liberal allowance of corn daily since January 1st. On April 22d Mr. C. weighed two of these steers, and again on May 27th, when one of them had made the astonishing gain of 165 lbs. in 35 days. The same two were weighed to-day, and showed a gain of 130 lbs. each in 35 days, as attested by Mr. D. Humphreys, who weighed them. Such results as this will open the eyes of the average farmer quicker than anything else to the necessity of good blood and generous feeding in order to secure early maturity. I forgot to state that the above-mentioned cattle were all high-grade Short-horns. I hear of some farmers who think already that Mr. C.'s example is worth following; and we shall have more cattle that attain great weight at an early age, and we have plenty of fine herds from which to select good bulls for use on our farms.

The common stock has been greatly improved within the past five years, but much greater improvement may be expected during the next five years.

The Value of Grades.

We have often thought that much good might be done by the offering of prizes for *grades* at county and State fairs, as an exhibition of the superiority of animals having one or two crosses of good blood would show the uninformed what might be accomplished simply by the use of a well-bred bull. The only argument against such a course is that it may tend to encourage the use of grade bulls for breeding stock, which certainly should not be done. This might be obviated by confining the exhibition of grade stock to females and steers, which would show upon its face that the society did not encourage the use of grade bulls.

We were forcibly impressed with the importance of thus teaching the value of a good bull upon a herd of common cows, by seeing, at the late Iowa State Fair, a grade short-horn steer, the property of L. S. Coffin, of the *Ft. Dodge Gazette*, upon which was the following placard:

"I am Dan Webster! My mother is a scrub, my father is a thoroughbred. I weigh 1,200 lbs., and am a yearling. I was brought up on skim-milk. I am worth 4 cts. per pound. I am here to show what any farmer can raise by giving his cows good, well-bred companions. For these go to master."

Mr. Coffin did some very effective advertising by this means, and, at the same time, doubtless impressed many persons with the value of a thoroughbred bull upon a herd of common cows more forcibly than it was ever before done. It was a sort of "object teaching," so direct, so simple, and yet so conclusive, that the lesson could not fail of making a deep impression.—*Live Stock Journal.*

The Delaware Beet-Sugar Factory.

The new factory of the Delaware Sugar-Beet Company, located on the river above Edge Moor, is substantially completed and the machinery is now being put in. It is expected that the factory will be ready for business in about ten days. Its capacity will be about fifty tons of beet per day, which, should the crop warrant it, can be increased to the hundred next season. This being the first attempt at beet sugar manufacture in this state, and the first year in which any serious effort has been made to raise enough beets to experiment upon, the main object in view is to ascertain how much money there is in their culture as compared with other crops. The idea of the company is to buy the beets from the producers and manufacture the sugar on its own responsibility. Beets enough have been contracted for to keep the factory running about two weeks, which is about all that is anticipated this season.

The Poultry Yard.

By G. O. Brown, Montvue Poultry Yards, Brooklandville, Md.

Eggs in Winter.

We often hear farmers and others complain that they never get any eggs in winter. With proper feeding, comfortable hen-houses and good drinking water, there is no reason why a good supply of eggs cannot be had in winter as well as summer. Of course, this necessarily will be a little more trouble than throwing out "lots of corn" to "'em" in the snow, mud or slush; yet when eggs are worth three times (or more) as much as they are in summer, won't a little extra trouble be a good investment—especially when the farmer is not so hard pushed for time? A correspondent writes asking "how can I get eggs in winter?" "How must I feed, &c.?" First, then, much will depend upon the breed; but of any variety select early pullets and a few hens of the previous year's hatch. Commence feeding extra during the moult. Mornings use corn meal and heavy middling, (shorts,) two-thirds of the former to one of the latter, and always mix with boiling water and feed it while warm; at noon utilize your table scraps, potato parings, &c.; pound up the beefsteak bones; occasionally freely sprinkle red pepper in morning feed. At night mixed grains is the best feed. The following is the proportion I prefer: Corn 2 quarts, oats 5 quarts, rye 1 quart, wheat 3 quarts, buckwheat 2 quarts; mix thoroughly and feed amount required. Corn alone is a very inferior egg-producing food; but in extreme cold weather its qualities as a warming and fattening food render it a staple article of food. Rye is inferior to the other grains, and fowls do not seem to care for it. Warm milk is excellent, and the trouble of warming it will be well paid for by the increase in eggs. In the way of green food, apple parings or cores, occasionally a cabbage head, a turnip, &c., are all good. An old box with powdered oyster-shells, or gravel, or old lime plaster, should always be on hand. Keep your hen-house clean, and on extra cold days empty a bag of leaves in it and scatter some grain; this will give them the healthful exercise they need. Follow these simple rules and your fowls will prove a source of pleasure and *profit* that will really astonish the uninitiated.

Fowls on Grain Fields.

I threshed last October, and sold at 41s. 6d. per quarter, a crop of Rivett wheat, and it yielded 7¼ quarters (60 bushels) per acre, tail included. This field is open to and within 30 feet of the fowl-house, from which emerge every morning some 150 head of poultry, and they have been free to roam at large on this field from the time it was sown to the day of the crop. As it was drilled with something under five pecks per acre, and as the said poultry, immediately after sowing, took possession of the field and made a most searching and continuous examination of its contents, the prospect of a crop would appear alarming to those who were inexperienced in the matter; and I confess that, in the early days of my confidence and belief in poultry, I have felt somewhat nervous as to this and the next particular fields, knowing how sundry opponents of thin sowing would triumph and rejoice over a failure of the four pecks per acre. Well, but there is the fact of the sixty bushels of crop per acre, and by no means the first, second or third instance of the kind, for, however shabby and scratched the plants may appear in their early growth, their ultimate development is grand, and the thickest part of the crop is always that nearest to the fowl-house. They not only cultivate the crop, but manure it just as sheep do. But the great benefit is that not an insect has a chance of injuring a plant; while at the lower end of the field, less used by the poultry, there was injury from wire-worm. In fact, a long and close observation of the habits of birds and poultry has convinced me that they are farmers' and gardeners' best friends. It has been jocularly said that nothing in the shape of live stock makes so large a return as poultry do, as "for every grain they give a peck." It is interesting to watch their operations. Having with their active claws pulverized every clod and unhoused the plant destroyer, he is at once appropriated and converted into food for our table. Winged insects also have a poor chance with them. How neatly they "knab" the fly from his place of settlement, whether on the legs of our horses or cattle, or on the walls or boards! A sensible cart mare in my stable would not lift a foot so long as her favorite chicken was watching for and appropriating every fly that settled on any one of her legs. I have also been amused at seeing a blackbird on the lawn making a vigorous effort to withdraw from its hole a stout worm, and tumbling over backwards by an ultimate and suddenly successful result. We should, as farmers and gardeners, remember that for probably 11 months out of the 12 birds have to live upon the insect tribe, and that it is only during the ripening or ripening period that we must, by netting and other means, protect our fruit and crops. The good they do vastly exceeds the injury. I therefore strictly forbid bird-nesting, and strongly advocate that there should be at least 1 per cent. of shrubbery to every 100 acres of farm as a home for birds.—*London Agricultural Gazette.*

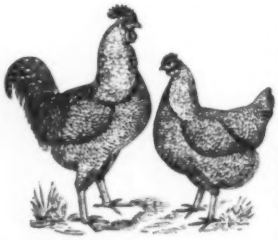
Killing and Dressing Poultry for Market.

Almost every locality has its own system, but I may advert to a few facts on this subject. Poultry, when bled to death, is much whiter in flesh. I should advise the following plan as the best, causing instant death without pain or disfigurement:

Open the beak of the fowl, then with a pointed and narrow knife make an incision at the back of the roof, which will divide the vertebræ and cause immediate death; after which hang the fowl up by the legs till the bleeding ceases, then rinse the beak out with vinegar and water. Fowls killed in this manner keep longer, and do not present the unsightly external marks as those killed by the ordinary system of wringing

the neck. When the entrails are drawn immediately after death, and the fowl stuffed, as they do in France, with paper shavings or short cocoanut fibers to preserve their shape, they will keep much longer fresh. Some breeders cram their poultry before killing to make them appear heavy; this is a most injudicious plan, as the undigested food soon enters into fermentation, and putrefaction takes place, as is evidenced by quantity of greenish, putrid-looking fowls that are seen in the markets. GEYELIN.

Plymouth Rocks.



Here we give an illustration of a pair of Plymouth Rocks.—This breed is rapidly growing in favor, and possesses many desirable qualities as a farmers' fowl. Aside from their tendency to "throw back," and thus produce chicks of dark plumage and feathered legs, they breed quite true to feather. There are, however, several strains that breed almost perfectly reliable. In the yards of Mr. F. W. Hooper (to whom we are indebted for the use of the above cut) we recently saw his past season's hatching, and all were true-colored, with unusually good yellow legs. In size they come between the Asiatics and the common fowls. They have the plumage of the Dominiques, and, like them, the chicks quickly feather, and are consequently at an early age in good condition as broilers. G. O. B.

The Fat Stock Show,

Under the auspices of the Illinois Board of Agriculture, comes off 10th to 15th Nov. at Chicago. The show will include not only fat stock of all kinds adapted to the butcher's block, but also poultry, machines, implements and utensils adapted to butchering and the dairy, and dairy products as well, including factory and farm dairy cheese, sweepstakes cheese, creamery butter and dairy butter, sweepstakes and grand sweepstakes butter premiums. This exhibition of dairy products will add greatly to the interest of the show.

Secretary Fisher, of the State Board of Agriculture, has published the premium list, amounting as follows:

Class A, Fat Cattle	$2,750
Class B, Horses (no premium)	..
Class C, Fat Sheep	750
Class D, Fat Swine	525
Class E, Fat Poultry	120
Class F, Implements, Dairy Utensils, etc.	...
Class G, Dairy Products	675
Special premiums	300
	$5,120

A new feature of the export business of this port is the shipment of potatoes, the steamer Bohemian taking out two hundred bags the other day.—*Boston Cultivator.*

Horticulture.

Cultivation of Small Fruits.

In a recent No. of the *Farmer* we gave the remarks of Mr. Saunders, of the Agricultural Department at Washington, on the subject of growing small fruits, as delivered at the meeting of the Potomac Fruit-Growers' Society. Our Washington correspondent has furnished us with some additional hints on fruit culture from the same source, embracing the cultivation of the grape and the apple; and in addition thereto we add the following report of the Harford Co. *Ægis* of the discussion at the Deer Creek Farmers' Club, of which small fruits was the principal topic:

The club met at the residence of Mr. James H. Ball, on Saturday, September 27th.

Messrs. James Lee, Moores and Munnikhuysen were appointed a committee to examine the condition of the farm and buildings. They were accompanied by the entire club, who examined more particularly Mr. Ball's grapery. He has a number of varieties, but principally Concord and Eshcol, which are planted on a hillside with a southern exposure. Each vine is pruned back every year to a height of six or eight feet, and trained up to a post.

The committee reported through Mr. Lee that Mr. Ball's wheat was nicely put in, both on fallow and stalk ground; that his corn was as good as any to be seen anywhere this season. Mr. Ball has a convenient arrangement for fastening cows; his pigs are good; his cattle of fair quality and nice for the season. The committee also visited the grapery, but could not say enough about that. The grapes were the finest they had ever seen. They also noticed a good garden, in which peanuts were growing.

Mr. Moores remarked that Mr. Ball was keeping pace with the other members of the club, and in some things excelling them. The committee had seen nothing they could criticise unfavorably. The farm had been much improved since the last visit of the club. Mr. Munnikhuysen agreed with the other members of the club. Mr. George E. Silver said he had noticed some Walter grapes, from which Mr. Ball was making raisins for exhibition at the county fair. The grapes are cut when ripe and dried in the sun.

The question suggested for discussion was the

Culture of Grapes and Small Fruits.

Mr. Ball said he trained the vines to a single post and allowed them to grow 6 or 8 feet high. The pruning is done during the pleasant days in February, or at any time after the leaves fall and before the sap starts. All of the previous year's growth is cut off, except one bud. After the buds start many of those left at first are rubbed off, to prevent too great a growth of wood. The ground is kept clear of grass and weeds with a hoe. During the summer the long shoots are snapped off to within two or three buds of the bunches of grapes. The vines are tied up to the posts with tarred strings, which should be re-

newed every spring. As to the varieties, he considered the Concord best, all in all, ever grown. The Ives are a week or two earlier, and you will be apt to find some of them on the vines after the Concord are gone. The Isabella, Catawba, and Clinton are late. The latter are a little tart. In planting for home use three-fourths of the vines should be Concord, a few Ives for early and a few Catawbas for late, with a few Ionas and a Diana or two. The Delaware is a slow grower and poor bearer, but a choice grape. A little bone-dust should be put on every year, but no barn-yard manure should be used, as it has a tendency to make wood and not fruit. A good healthy vine can easily be converted into any kind of grape you desire by grafting, which is easily done, either in the fall or spring,—the spring being the better time.

Blackberries are too much trouble to cultivate, and spread too much He had planted the Thornless Black Cap, Philadelphia, and Carter's Raspberries. The latter is valueless, and the Thornless is the best of all. Currants can be grown from cuttings, and need cultivation, but he had seen fine currants grown where they had not been cultivated. Raspberries and currants should both be planted on good ground and cultivated. Raspberries should not be trimmed much until the winter or spring.

The Green Prolific was the only variety of Strawberry he could recommend. He had been told that another variety must be planted with them to fertilize them, but Dr. Magraw had shown him some which bore luxuriantly with no other variety with them.

Mr. Quinby said he had not been successful with the Thornless Black Cap, and had gone back to the old purple or English kind, which bears four times as many as any other. He covers his strawberries lightly with straw in the fall. In the spring the plants are uncovered and allowed to come up among the straw. He plants strawberries in July or August, and raspberries in the spring. If he wants new plants, he allows the ends of the plants to strike the ground and take root, but does not use the suckers, which will not bear well.

Mr. Ball thought it would not do to disturb the roots of strawberries in the spring.—Mr. Quinby agreed with him, but said if they became very weedy the large weeds should be pulled out. A new bed, he said, should be set out every two years. If they are to be worked with a horse they should be planted three feet apart and the plants fifteen inches apart in the rows. They should be kept clean all the time until the 1st of October.

Very few of the members had anything to say on the subject, whereupon Mr. S. M. Lee remarked that he was extremely sorry to see so little interest in raising small fruits by young men, who drive around in buggies.

Mr. Munnikhuysen mentioned having seen a variety of wild raspberries ripe in Ohio in October.

Mr. Moores had never planted but one vine and put half a bushel of coarse bone near its roots. That was many years ago. It is still growing, has sent its branches to a distance of 50 yards and bears a great many grapes. As for blackberries, raspberries and strawberries he has been trying all his life to kill them on his farm. Still, he encouraged the cultivation of all improved kinds of grapes, strawberries, &c.

Mr. Thomas A. Hays digressed a little from the subject by asking the proper time to gather pumpkins. Mr. Moores said they should be pulled now and put under the corn shocks, where they will keep two months. They will not keep in a damp place. Mr. Quinby said he had known them to keep in New Jersey until the following May. A few heavy frosts will injure them. They should be kept in a room in the house, where they will not freeze.

Mr. Thos. A. Hays said that in planting raspberries he would select a variety that will stand the winter. He thought farmers neglected raising fruit. They should have enough, at least, for home consumption. It costs nothing. They should also have good truck patches and good gardens.

Mr. Hays also asked if this is the proper time to pick apples. Mr. Archer said he had better luck keeping them by picking after frost. Mr. S. M. Lee said they should be picked whenever the stem separated easily from the twig.

Mr. S. B. Silver said the members had all shown that they appreciate small fruits. Nature has provided a great many varieties, and the time devoted to their cultivation would pay double their cost. Raspberries and other small fruits should have separate beds to grow on. The raspberries had been imposed upon, by being planted against fences and in out-of-the-way places.

Mr. B. Silver said that some years ago they had nice grapes, but they stopped pruning them and the grapes stopped too.

Wm. F. Hays said he waged war on fox grapes, blackberries and raspberries, and would continue to do so until they were subdued.

On Grading Ground—VI.

Many years ago, in taking a walk with the well-known Mr. William Chorlton over the beautiful grounds of the late J. C. Green, Esq., of Staten Island, N. Y., my friend dropped a hint that has proved more serviceable in practice than anything of the kind I ever gleaned from books, and that has saved much money to my employers in the formation and management of their garden walks. Mr. Green's lawn was perfect, and the walks, though differing somewhat from the customary models, were so faultless in their outline that one could only look on and admire. I did not observe, until it was pointed out to me, that the lawn on nearing the walks was made in places to rise gradually, almost imperceptibly, to their edges, and that the walks were just sufficiently raised and rounded to throw the rain water on to the grass where it would do some service instead of letting it wash the walks as is usual; or of putting his employer to the worse than useless expense of brick gutters and underground pipes.

To show the value of this simple hint let me give one illustration out of many that I can readily recall. On a place where I once worked it was customary for all hands to go after every

rain storm and cart back the gravel that was washed out of a rather steep walk. I proposed to cure it *a la* Chorlton, but the proprietor, a man of iron will, thought he would try it himself. He laid his pipes, and the gravel being of a loose nature, filled them solid the first freshet. Many vain attempts were made to keep them clear, but the whole effort was a failure, and so it happened that a man of world-wide fame as an inventor was baffled by a simple garden walk. On the same place I afterwards made a much steeper walk with similar loose materials, and it stood many a rain storm, simply from being graded as a steep path ought to be, and after the plan mentioned above. The idea is just this: An up-hill walk should be so raised and rounded that the water will have a greater tendency to run towards the grass border than down the path. When we have done that we have taken advantage of all that grading can do for us. I grant that in extreme cases the walk would require to be raised so high as to become unsightly, but the only remedy for that would be to have an asphaltum or a grass walk.

Our walks are *ditches*. We notch them out two or three inches below the natural level, inviting the flow of water from all directions, and then set our wits to work to get rid of it.—The rain that falls on a properly-shaped walk, even when coated with poor material, will rarely wash it. The damage is done by water from the adjoining ground. Where the surface is level or nearly so, the usual form of garden walk is proper enough, but I venture to say that in other cases such form is very objectionable in a common sense view, whatever the authorities may say in regard to it.

The proper way to make a garden walk is, according to the *American Agriculturist*, to dig out two feet of earth, and fill in with stones to six inches of top, and finish first with coarse and then fine gravel on the surface. Water and roll thoroughly. These are excellent directions where the land is a miry clay, and the walks are to be used all the year round; but where one walk is made in that way, fifty walks, and good ones too, are made by simply shaping the ground properly and coating it with good gravel.

I will conclude with a few directions as to how to prepare an even surface, such as a croquet ground or a level lawn. Premising that the ground is free from great inequalities, I would top-dress with several inches of short manure, plow, harrow and roll the ground. Set up the grading stakes along one side of the plat as near the general level of the surface as possible, and go along sighting from stake to stake as before described,—a laborer meanwhile evening the ground behind, for a spade's breadth at least, according as you direct him. Next run a similar line on the opposite side of the plat as near as may be parallel to the first, and in the same plane. Between these two main lines run a number of cross lines, not more than two or three yards apart. Great pains should be taken to make these guide lines as perfect as possible. It may even be advisable to run several lines betwixt and parallel to the main lines. When this is completed, all inequalities are thrown into relief; the workmen can make no mistakes; they fill up all low places, and gather the surplus earth, if any, into high and narrow heaps to be either taken off the ground or scattered evenly over the whole surface.

Few persons indeed go to all this trouble with their grounds, but I know of no royal road to make as perfect work. Garden lines will sag. Nothing sooner takes the conceit out of a man who prides himself on a good "eye" than to ask him if a certain piece of ground is even or not, and then apply the instruments.

Proceed to rake the ground evenly. Find out how much lawn grass is generally sown to the acre, and take my advice and sow just double the quantity. Sow half in one direction and half at right angles to it. Rake the surface at least twice, and in different directions. Roll heavily.

JOHN WATSON.

On Seeding an Orchard.

Messrs. Editors American Farmer:

To seed or not to seed, that is the question so long mooted and answered affirmatively by some and negatively by others: *i. e.*, whether it is best to seed the orchard.

Mr. William Saunders, in a paper recently read before the Potomac Fruit-Growers, has, I think, solved the question; and as it is so plainly and handsomely done, I am sure that your readers will thank me for copying his remarks, which, though treating of one kind of fruit, is equally true of all orchards. He says: "As to the treatment of apple orchards, we know that when they are established on light gravelly or sandy soils they require periodical applications of manure, that the ground should also be kept loose by shallow plowing, and afterwards to be surface-stirred with the harrow or cultivator,—all of which is requisite to maintain a proper degree of fertility. We have learned that to sow grass on the surface of the orchard planted in such soils is simply the first step towards the destruction of the trees so far as regards their fruit-bearing capacities. Of course we are now considering ordinary condition and management; for it is quite practical, merely considering it as a question of possibility, to so enrich the surface of even the lightest of soils as to obviate necessity of further surface-culture.

On the other hand we may imagine the case of an orchard placed in a condition of things very much the reverse of the one we have considered. In this the soil is a strong rich loam, perhaps with a preponderance of clay in its composition, and that the trees are growing vigorously, and for some years have been making a great quantity of wood and but very little fruit.

When a case of this kind occurs we know that in order to produce fruitfulness we must, by some means, weaken the growth, and the most available means is to cover the orchards with grass; this will have a tendency to check the growth of the shoots, and, as a consequence, favor the production of fruit.

This is in accordance with the general law, "that whatever tends to weaken a plant favors the production of flowers and fruit, and whatever tends to the luxuriant growth of leaves and

branches is unfavorable to the production of fruit."

Therefore it is that the question as to whether orchards should be kept in grass or cultivated like a corn-field cannot be answered with regard to orchards in general; but when the question is applied to any particular orchard it admits of a definite answer, the condition of the trees (and soil) indicating what the answer will be.

Mr. Saunders speaks "by the book," for he has a pear orchard on his farm, a few miles out of the city, which his foreman seeded down without his knowledge, and which Mr. S. saw at a distance was damaging his trees.

I may be allowed a suggestion or two: if the orchard be in grass, mow the grass and let it remain on the ground. A heavy dressing of manure spread on the grass every two or three years will keep the ground in good tilth.

G. F. NEEDHAM.

Washington, D. C., Nov, 1879.

Fruit Culture.

At a late meeting of the Potomac Fruit-Growers' Association, William Saunders read an interesting paper—substantially as follows—on Fruit Culture:

Grapes.—About grapes, we know that one of the greatest obstacles to complete success in their culture, is the deterioration and destruction of their foliage from mildew. We know that by protecting the vines with board or glass coverings, so as to prevent radiation of heat from their leaves, no dew will be formed on them, rains will be averted, a healthy foliage will be maintained, and consequently good crops will be produced.

There are some varieties of grapes, such as the Concord, Ives, Perkins, etc., that do well in any climate, provided that it is warm enough for the growth of the plant. None of these can be placed on the list of our best native grapes, although they are the best we can secure outside of good grape climates.

A good grape climate is where we can grow to perfection such kinds as the Iona, Walter, Eumelan, etc.—those of similar excellence. The distinguishing feature of a good grape climate is that of the entire absence of mildew on the foliage of the vine, and there are many points in the Northern and Western States where these conditions exist, so far as refers to good table grapes.

Apples.—Apple orchards on light gravelly or sandy soils require a periodical application of manure. The ground also should be kept loose by shallow plowing or use of the cultivator, to maintain a proper degree of fertility. To sow grass-seed on such kind of soils is simply to destroy the trees, as far as their fruit-bearing capacities.

On the other hand, if the soil is a strong clay loam, and the trees are growing vigorously, and for some years have been making a great quantity of wood and but little fruit, the most available means to procure fruit will be to cover the ground with grass, which will have a tendency to check wood-growth and favor the production of fruit. Hence the various conditions of management of orchards. G. F. NEEDHAM.

Washington, D. C., Nov., 1879.

Col. Wilder's Address—American Pomological Society.

We have received from Col. MARSHALL P. WILDER, President of the American Pomological Society, a copy of the annual address forwarded by him to the 17th biennual session, held September 17–19, 1879, at Rochester, N. Y.—Col. Wilder, in consequence of an accident which lately befell him, was unable to be present at the meeting of the society, which he had regularly attended as its presiding officer for the 31 years of its existence, save two. The president regrets his absence the more at this session, as it was his intention, if he had been permitted to be with them, to have extended to the society an invitation to hold its next session in the city of Boston, when he intended to lay down the high honors which it had conferred on him.

Col. Wilder gives a graphic view of the rapid progress which the society has made since its establishment; "how it has risen from the small beginning of a few States until its jurisdiction embraces a catalogue of fifty States, Districts and Territories, with lists of fruits adapted to each,—how its list of members has increased from few a dozens to many hundreds of practical and scientific cultivators, and numerous sister associations have spread over our fair land, from the British Provinces to the Gulf of Mexico, all working together in harmony with each other to aid us in our great work of planting throughout our vast domain, gardens, orchards and vineyards of the best fruits known."

He points to the astonishing increase in fruit culture since the origin of the society, and alludes to the comparatively small value of the fruit crop of that day, not considered as worthy of a place in our national statistics, whilst now rivalling in value some of the most important crops of our country. The lessons of experience which have been acquired is commented on in the production of new and improved varieties from seed, either by cross-breeding or from the natural seed of the best-known kinds extant. Of the advantages of cross-fertilization or hybridization of plants, the Col. says:

"What wonders have been achieved in the vegetable kingdom by these means in our own time! But still greater wonders are to be realized by this art as time advances, producing new and improved varieties of still greater excellence. Instances are so numerous of wonderful improvement by the application of this

art in the production of magnificent fruits, flowers, and vegetables, as to need no reference in detail. I have so often, during the forty years of my own experience, alluded to the importance of this art as the true means of rapid progress, that I refrain from extended remark and desire only to repeat again my former advice, *to plant the most perfect and mature seed of our very best fruits, and as the means of more rapid progress to cross-fertilize our finest fruits for still greater excellence.* Thus I have discoursed to you for many years—thus I have promised to do while I live. This is our work, to direct and help nature on in the course of improvement."

He shows the amazing improvement by the application of this art in the Rose, Camellia, Dahlia, Azalea, and other plants in our own time, and adds: "Who that has seen the hybrid grapes of Ricketts, Rogers, Ellwanger & Barry, Moores, Campbell and other practitioners, can doubt the potent influence of the cross impregnation of plants?"

An important practical suggestion made by Col. Wilder we will here annex, as we would like to do the whole of this beautiful address; it is upon the subject of "thinning and packing of fruit," a matter of vast importance which the sellers thereof do not sufficiently consider. He says:

"The importance of properly thinning our fruit trees when bearing redundant crops is more and more apparent. To produce fruit that commands a good price in the market has become an absolute necessity. This is seen especially in that intended for exportation,—apples of good size, fair and properly packed, commanding in the English market fully double the price of those which had not received such care. Such also is the case in our own markets,—Baldwin apples of one grower bringing two to three dollars per barrel, while his neighbor's, which had received no such attention, brought but a dollar. To produce such fruit, trees must not only have good cultivation, but should be properly thinned, excessive production being always at the expense of both quantity and quality. This lesson we learned long ago, and I have often endeavored to impress upon cultivators the importance of following it. Therefore you will excuse me for calling your attention to it again.

The export trade of our American products is constantly increasing, and among them the fruits of our country, especially apples, are always in regular demand, and as new facilities are afforded for their shipment a constant trade will be ensured of great importance and permanency to our commerce. Nor is this demand likely to fall off. These facts should encourage our fruit-growers to devote more and more of their broad acres to the production of fruits to meet the constantly increasing foreign demand."

The Col. does not fail to give due credit to the scientific men who have rendered such essential service to the public, by their investigations as to the insects and diseases injurious to vegetation; and on behalf of cultivators and the public tenders "thanks to Harris, Riley, Fetch, Glover, Le Baron, Thomas, Packard, and other entomologists, who have devoted their lives to the investigation of this subject." In memoriam, he refers in appropriate terms to the death of several of the officers of the society, and alludes in the following eloquent manner to the loss which pomology and agriculture have sustained in the departure of an eminent Marylander, Col. Edward Wilkins, of Kent Co. He says:

"Although it has not been our custom to refer to others than those who have held official relations with us, I think it proper also to notice the death of Col. Edward Wilkins, of Chestertown, Maryland, who died December, 1878. From Col. W., it will be remembered, the society received especial courtesies at its session in Baltimore. At his invitation the society visited his extensive peach orchard, the dimensions of which would astonish the world. It was probably the largest of which we have any record. He was much attached to fruit culture, and did not confine himself to peaches alone. He was one of the fathers of the immense peach trade, and his orchards were wonderfully successful. He was one of the foremost horticulturists of Maryland, full of enthusiasm, and characterized by business-like methods in this and other walks of life. He was universally respected as a progressive man."

American Pomological Society.

The biennial meeting of this association was held at Rochester, September 17–19, and was considered equal in attendance and interest to any one that has preceded it, the average number present at the different sessions being about 200, including members of the society and delegates from local associations in the different States, including Canada and Nova Scotia.—Much regret was felt that the esteemed president, Marshall P. Wilder, of Boston, was not able to be present, owing to an accident which, with his advanced age, had disabled him from travelling. The meeting was called to order by Robert Manning, of Salem, who has been the acting secretary since the lamented death of Hon. W. C. Flagg, the former incumbent. Dr. J. A. Warder, Vice-President for Ohio, was called to the chair, and acknowledged the honor appropriately. The Mayor of Rochester welcomed the society with a handsome speech, to which the chairman made suitable response. A committee of five was appointed to award the Wilder medals on fruits exhibited. The display of fruits was very large and fine, embracing quite a number of promising new varieties, especially of grapes.

The address of the president, a more extended notice of which is given elsewhere, was read. Mr. Barry reported on a revision of the catalogue—40 varieties of apples were reported to

be added to the list, and 11 stricken out; 11 varieties of pears, 20 of peaches, 9 of plums, 1 cherry and 3 raspberries, were also added to the list. Thanks were tendered to Mr. Barry for his valuable services in the revision of the list.

Mr. Bateham, of Ohio, said he had been giving attention to several new early peaches, produced in Northern Ohio, but owing to the dryness of the season, or some other peculiarity, it was found that a number of kinds which had heretofore been at least a week apart in time of ripening, this season ripening nearly together, or within a day or two of each other. He received eight varieties of new early peaches from the Messrs. Engle of Marietta, Pa., embracing Downing, Wilder, Saunders, Musser, Cumberland and several others, with Amsden and Alexander, and it was found there also that the time of ripening of all was nearly the same, and in appearance they were more nearly alike than in former seasons. The earliest of the new varieties in Ohio was produced by T. Davidson, of Painesville, and named Number One. It ripened this year, like those in Pennsylvania, along with Alexander, and much like it in size, color and quality; but last year it was about ten days earlier. Another seedling of his county, called the Allen, was also believed to be earlier than Alexander, from observations of the past year, but ripened with it this season. He had received specimens of the Waterloo, a fine new early peach, from Ellwanger & Barry, of Rochester, very closely resembling Davidson's Number One. He asked Mr. W. C. Barry to give further information respecting it, who said, from all that could be seen, it was the belief that it would prove some days earlier than Alexander and equal to it in size, color and quality. General discussion on peaches followed.

Mr. W. Saunders, of the public gardens at Washington, read a paper on grapes and their diseases. Mr. Meehan gave a talk on the sexes of flowers, &c. Mr. Bush, of Mo., read a paper on grape rot. Mr. Bateham also spoke of the loss the grape disease had caused in Ohio, and believed that no topic was likely to come before the society of more grave importance than this, especially to Western fruit-growers.

There were on exhibition 859 plates of apples; 517 plates of pears; 16 plates of peaches; 409 plates of grapes, and 37 plates of miscellaneous fruit—making in all a total of 1,838 plates.

At the Wray Park, England, sale of pure-bred Jerseys on Sept. 9, two five-year old cows brought respectively 44 and 40 guineas; two four years old brought 21 and 28 gs.; five three years old brought 35, 40, 37, 43 and 28 gs.; six two years old brought 36, 22, 27, 21, 35 and 15 gs., and ten yearlings brought 34, 20, 17, 23, 22, 16, 16, 15, 66 and 12 gs. respectively. Two bulls brought 21 and 30 guineas. Twenty females averaged £29, 2s. 1d., and the bulls averaged £26, 15s. 6d. The range for females being from 44 to 12 guineas.

Floriculture, &c.,—November, 1879.

By W. D. Brackenridge, Florist and Nurseryman, Govanstown, Baltimore Co., Md.

Pleasure Grounds.

After the first frost choose a dry day in which to take up from the ground roots of Tigridias, Gladiolus, Dahlias, Tuberoses and Caladiums. Clean off all earth, and then lay these out in a dry airy situation that is partially shaded; after remaining in this situation for about one week or ten days, then store them away in boxes or shelves in a dry cellar or room where frosts will not reach. The Tigridias and Tuberose roots are the most liable to get injured by cold and damp. North of Virginia both Tritonia and Canna should be lifted now. The first will survive best by being planted close together in a cold frame; while the latter may, without much care, be wintered over under the stage of a temperate greenhouse; but in putting them away a little earth should be allowed to remain about the roots, and these placed close together.

To protect herbaceous plants from being killed or drawn out of the ground by frosts, it is a good plan to sprinkle about an inch or more of oak leaves over them, and in order to keep the leaves from getting blown away a little fresh stable manure will answer the purpose admirably.

It is a good plan, when the earth in the flower beds is of a stiff clayey nature, to what gardeners call "rough digging"—that is, to leave the spits just as they fall from the spade, without any pulverizing. This action makes the ground more easy to work in spring, and moreover, by being exposed to the frosts, a number of insect larvæ is killed; and in view of still further saving of labor in spring, we would dig in a quantity of manure, thus giving it time to diffuse its virtue through the mass of earth with which it can be incorporated by means of being well forked up before planting.

And just here we will endeavor to explain why so many failures take place among plants that have been bedded out in spring. The first and greatest error we would name is the lack of deep preparation of the soil in the beds; these should be trenched or turned over to the depth of at least two feet, and the bottom well drained to prevent stagnation of water. In beds so prepared the roots will strike deep, enabling the plants to withstand long droughts, and the drainage will in a great measure prevent the scalding or rotting of succulent kinds during wet weather or heavy thundergusts. The second mistake is to be found in neglecting to use the hoe and rake so soon as the surface of the ground becomes baked or crusted over. And, further, that in order to secure a good effect at planting-time more plants are put down than is necessary or judicious to secure a good robust and healthy late summer and fall display. In such a case, should the ground be shallow and poor, the beds will begin to look shabby and mean before the month of August sets in. Foliage plants will not grow well nor effect a good purpose when planted under the shade or near large forest trees, as the tops will shed off the rains, and their roots will soon find

out and absorb all the nourishment in the soil intended for the flowers.

All progress made last month in the planting of trees and shrubs should be continued to the end of the month, or as the ground is free from frosts and not overwet. Any tree or shrub planted in the ground when the earth is so wet that it will not break up into open particles when filled in among the roots will remain in a sickly condition for years afterwards. We have experimented in this department considerably, and have monuments to show to unbelievers of the difference at the end of two or more years of trees that were filled in about the roots with medium moist earth and then watered, in opposition to others, where the earth in which they were planted was wet; and, as we said above, no tree should be planted in earth that will not, when thrown from the spade or shovel, break up into open particles. Another great evil which often attends planting is thrusting them too deep in the ground; this is often done to avoid the use of stakes to keep the tree steady until the roots have laid hold of the ground; but this latter object can be effected by cross-bars made fast to strong stakes, which should all be underground when the earth is properly filled in. No tree should be planted deeper than it stood in the place from whence it was taken up.

We now offer a few words in the way of advice to such as are about to lay out and improve grounds of small extent surrounding suburban residences; that many glaring errors are committed by not having made before the improvements began a map of the whole property, having on its face a design showing the ground-work to be done, giving the width, direction and number of roads and walks; the kinds and number of trees required for shelter, shade and ornament, so that each may be placed in a position that when they develop themselves the desire of the proprietor may be realized or answer the purpose for which they were so placed; and to this end it is very desirable that the forms and tints of color in the foliage should be studied. Bearing on this point we made a few remarks in last month's number, to which we now refer our readers.

Mistakes which we see often made in the carrying out of such improvements consist in having too many roads and walks, answering no other purpose than that of reflecting the sun's rays back on the face of the passenger, as well as giving rise to very considerable expense in keeping them clean. The old and unsightly plan was having a circular grass plot in front of the house, round which a road passes from the front door to get back to the main entrance. Now it is easy to get rid of this obnoxious circle by passing round a group of trees planted off to one side of the house; and, as if to flank it, a corresponding group should be planted on the opposite side, in the midst of which a summer house or arbor could conveniently be located; and it is easy to perceive that these groups of trees will answer the purpose of showing off the house to advantage, as well as affording shelter from severe winds and a resting place for birds.

With the exception of the road which crosses in front of the dwelling, the lawn should be intact from that to the boundary, studded only here and there with solitary specimens of choice trees and beds of flowers, skirting the approach road; while the great variety of shade trees ought to be grouped along the boundaries, winding among which a walk might be led. No tree should be planted nearer than forty feet of the dwelling—that is, if the health of the inmates is to be studied. A well-kept lawn which kisses the walls of the building all round will afford the greatest beauty and comfort and will set off the dwelling to advantage.

Greenhouse.

By the time this article reaches the public it is presumed that so-called greenhouse plants have all been placed under glass for the winter; and in order to keep them in good condition there are two or three things very important to be observed, and the first is not to give more water at the root than the plant can absorb, and whenever you are in doubt on this point, then withhold it until such time as you find the base becoming dry; then supply as much as will reach the bottom of the pot. Better that plants during the winter receive less than more than they require. But there are exceptions to this tardy supply in the case of Calla Lilies, Eupatoriums and Stevias; these, to flower freely, want a good supply of water. The first-named may be termed a regular marsh plant; and, further, with regard to water, do not apply it overhead with the syringe except when the weather is clear and the temperature high, observing to perform this in the early part of the day.

Another item which demands the attention of the cultivator is, to admit fresh air during the forenoon on every occasion when the weather is mild, taking it off in the early part of the afternoon, so as to shut in some of the sun's heat, which will tend to the saving of fuel; and still further to save this we start our fires early in the afternoon, so as to get the flues—or if it be hot water—well warmed up, to prevent the temperature from getting low, for it takes double the quantity of coal to expel the cold when once in than it does to keep it out.

Many people kill red spider and the thrip by painting the flues or pipes with a wash of sulphur and water. The only objection to this method is the bad smell emitted therefrom. We usually keep these pests in subjection by a seasonable application of pure water.

It often happens that Camellias set more flower buds than the plant can unfold to perfection. All but one or two buds on each shoot should now be removed by the finger and thumb.

Cuttings of Verbenas should be put in during the early part of the month. Trim to one or two eyes, and long leaves ought to be shortened back; they strike best in pure sand, the temperature to be about 55°, and if properly attended to in watering they will make roots in about two weeks. Roses can be propagated in the same way by cuttings of the full growths from 1 to 2 inches long, leaving only one bud at top. The Tea, Bourbon and Bengal kinds will make roots almost as freely as Geraniums.

Salvias and Chrysanthemums will now require attention by giving them a good place, and to afford room for such the pots of Caladiums, Gesnerias, Gloxinias, Achimenes and the Lily tribe, whose leaves are decaying, should be placed away in a warm dry place, where they will receive little or no water.

Such pots of Hyacinths and Tulips that have made good roots can be uncovered and brought into heat; but do not push them too fast at first, otherwise you will have flowers but no leaves until after the flowers are spent.

W. D. B.

The Maryland Horticultural Society's Exhibition for 1879.

As noticed in our last edition, issued during the progress of the show, the annual exhibition of this year was the most attractive and complete if not the largest ever held by the society. The plants were never so interesting and handsome or more effectively displayed, the collection of floral designs never more abundant or more beautiful, and whilst the tables did not bear the usual quantity of fruits, the quality was at least up to the average, whilst the vegetable department was better filled than at any previous meeting.

The limitation of our space compels us to forego any detailed enumeration of the various collections; and we can only note that in variety, extent and attractiveness, the collections of Messrs. Wm. H. Perot, R. W. L. Rasin, Sam'l M. Shoemaker and W. W. Spence, amongst the private exhibitors, and A. Brackenridge, Jas. Pentland, Robt. J. Halliday, Alex. Scott and Chas. Hamilton, of the commercial establishments, were never equaled at any previous show of this society, and that it is doubtful whether any other city could much surpass their products in evidences of careful culture.

The handsome collection of rare and stately plants at Patterson Park, Baltimore, was liberally drawn upon by its superintendent, Wm. Fraser, to contribute to the adornment of the Armory, and Sam'l Feast & Sons had a large number of well-grown specimens in use for decorative purposes. The general effect of the display was extremely pleasing, but the arrangement of the exhibits permitted visitors to examine in detail the interesting plants. A special feature was the collections of Orchids or air plants, from the houses of Messrs. Shoemaker and Perot. Some of the blooms were very curious, and, by their resemblance to insects of exaggerated size and vivid color, attracted much notice.

The fruits and vegetables, as a rule, were of good quality. The grapes grown under glass notably fine, especially those from W. T. Walters, Esq.,—the size of the bunches and berries, their good color and bloom, reflecting credit on the skill of the gardener, Mr. Frazier, who grew them.

Some of the ornamental designs in cut flowers were beautiful in conception and execution; the one to which the special prize of $25 was awarded John Cook, being a pedestal covered with Ivy leaves, and bearing an urn filled and overflowing with flowers, the height of the whole being not less than five feet.

The attendance on the show was quite as large as usual; and, so far as securing a large and effective display, the exhibition was one of the greatest successes the society has yet met.

On the evening of Thursday, October 2d, the annual meeting was held, and the following gentlemen elected as an executive committee to manage the affairs of the society for the ensuing year: Wm. H. Perot, Wm. D. Brackenridge, R. W. L. Rasin, August Hoen, James Pentland, John E. Feast, Wm. B. Sands, W. W. Spence, S. M. Shoemaker, Robt. Garrett, Wm. Fraser, J. I. Cohen.

The new board met immediately thereafter, and re-elected Wm. H. Perot, President, R. W. L. Rasin, Treasurer, and Wm. B. Sands, Corresponding and Recording Secretary.

Premiums Awarded.

Commercial List.

SECTION 1.—PLANTS.

Best collection of 12 Stove or Greenhouse Plants, $5, James Pentland; single specimen plant, not variegated, certificate of merit, James Pentland; best 12 Variegated Foliage Plants, $5, R. J. Halliday; 2d best do., $3, James Pentland; best single do., certifi., R. J. Halliday; 2d best do., $2, James Pentland; best 6 Caladiums, $2, R. J. Halliday; 2d best do., $1, Alex. Scott; best 6 Dracœnas, $3, James Pentland; 2d best do., $2, R. J. Halliday; best 6 Palms, $4, R. J. Halliday; 2d best do., $2, A. Brackenridge; best 12 Ferns, $4, J. Pentland; 2d best do., $2, R. J. Halliday; best 4 Tree Ferns, $9, A. Brackenridge; best single specimen Tree Fern, certificate, A. Brackenridge; best 12 Selaginellas and Lycopods, $3, A. Brackenridge; 2d best do., $2, R. J. Halliday; best 6 Coleus, $2, Chas. Hamilton; 2d best do., $1, J. Pentland; best 6 Agaves, $2, J. Pentland; 2d best do., $1, A. Brackenridge; best 6 Crotons, $5, J. Pentland; 2d best do., $3, R. J. Halliday; best Ixora, $2, R. J. Halliday; best 6 Marantas, $3, J. Pentland; 2d best do., A. Brackenridge; best 6 Begonias, $2, Alex. Scott; best 12 Succulents, $2, A. Brackenridge; best new plant, not before exhibited, $3, A. Brackenridge, for *Glichema rupestris*; best 6 Zonal Geraniums, $2, J. Pentland; 2d best do., $1, A. Scott; best 6 double Geraniums, $2, J. Pentland; 2d best do., $1, A. Scott; best 12 Asters, $2, A. Hoen; best collection Hardy Evergreens, $5, Wm. D. Brackenridge; best pair Hanging Baskets, $2, R. J. Halliday; 2d best do., $1, A Scott; best and most economical design for a window box or garden, $3, R. J. Halliday.

Special.—To W. W. Spence for Crotons, $3; to S. M. Shoemaker, certificate of merit, for Orchids of great rarity.

SECTION 2.—CUT FLOWERS.

Best display of cut Roses, $5, S. Feast & Sons; best 12 named varieties of Roses, $3, John Cook; best 12 named varieties Dahlias, $3, best 12 varieties Pompone Dahlias, $3, best display of Dahlias, $3, best collection Verbenas, $2, A. Brackenridge; best 12 spikes Tuberoses,

$2, J. Pentland; best 12 varieties Gladioluses, $3, Wm. T. Walters, (W. Frazier, gardener;) best display of Gladioluses, $3, best display of Asters, $2, S. Feast & Sons; best 12 species Herbaceous Plants, $2, A. Brackenridge.

SECTION 3.—FLORAL DESIGNS.

Best Table Design, $5, R. J. Halliday; 2d best do., $3, G. Burger; best basket of Flowers, $3, R. J. Halliday; best pair Hand Bouquets, $3, Miss Clara J. Hamilton; 2d best do., $2, A. Scott; best Table Bouquet, $3, Miss Clara J. Hamilton; best Bridal Bouquet, Wreath and Corsage Bouquet, certificate, S. Feast & Sons; best Funeral Design, $3, R. J. Halliday; best Bouquet Native Grasses, $2, A. Brackenridge; best continuous display of Cut Flowers and Designs during exhibition, $20, R. J. Halliday; 2d best do., $10, S. Feast & Sons.

Special.—For best Floral Design not limited as to size and conditions, nor in conflict with entries in general list, $25, John Cook.

Class 2.—Amateurs who keep Professional Gardeners.

SECTION 1.—PLANTS.

Best collection of 12 Stove or Greenhouse Plants, $5, Saml. M. Shoemaker; 2d best do., $3, W. W. Spence; best single Specimen Plant not variegated, certificate of merit, S. M. Shoemaker and W. W. Spence, (*equal*;) 2d best do, $2, R. W. L. Rasin; best 12 Variegated Foliage Plants, $5, S. M. Shoemaker; 2d best do., $3, Wm. H. Perot; best single Specimen Variegated Foliage Plant, certificate, Wm. H. Perot; 2d best do., $2, W. W. Spence; best 6 Caladiums, $2, W. W. Spence; 2d best do, $1, W. H. Perot; best 6 Dracœnas, $2, R. W L. Rasin; 2d best do., $2, W. W. Spence; best 6 Palms, $4, W. H. Perot; 2d best do., $2 W. W. Spence; best 12 Ferns, $4, S. M. Shoemaker; 2d best do., $2, R. W. L. Rasin; best Tree Fern, certificate, W. H. Perot; best 12 Selaginellas, $3, W. W. Spence; best 6 Coleus, $2, W. H. Perot; 2d best do., $1, R. W. L. Rasin; best 6 Agaves, $2, R. W. L. Rasin; best 6 Crotons, $5, R. W. L. Rasin; 2d best do., $3, S. M. Shoemaker; best single Croton, certificate, R. W. L. Rasin, for *Weismanii*; best 6 Marantas, $3, S. M. Shoemaker; 2d best do., $2, W. W. Spence; best single specimen Maranta, certificate, S. M. Shoemaker; best 6 Begonias, $2, W. W. Spence; best new plant, not before exhibited, $3, S. M. Shoemaker, for *Latania glaucophyllum*; best collection Orchids, not less than 6 plants, in bloom, $3, Wm. H. Perot; best Ornamental Vase, $3, W. W. Spence; best Wardian Case, special certificate of merit, S. M. Shoemaker; best pair Hanging Baskets, $2, S. M. Shoemaker.

SECTION 2.—CUT FLOWERS.

Best 12 varieties Dahlias, $3, A. Hoen; 2d best do., $2, W. H. Perot; 3d best do., $1, Wm. Fraser; best display of Dahlias, certificate, and best display of Asters, $2, A. Hoen.

Premiums for Encouragement of Amateur and Window Gardenering.

Best 6 Specimen Plants, $3, C. H. Pepar; best 3 Coleus, $2, Master R. J. Halliday; best 3 Caladiums, $2, Master R. J. Halliday; 2d best do., $1, C. H. Pepar; best Window Box, with plants, $3, Geo. Carr; 2d best do., $2, J. I. Cohen; honorable mention for Window Boxes to Miss Mary B. Wilson and W. H. Wehrhane; best Rustic Stand, $3, Miss Mary B. Wilson; Table Design, $2, Miss L. Martin, Ellicott City.

Fruits.

Best 6 varieties Exotic Grapes, 2 bunches of each, $3, Wm. T. Walters, (Wm. Frazier, gardener;) 2d best do., 2, Mrs. C. J. Baker, (D. Thurley, gardener;) best 2 bunches Black Hamburg, not less than 2 lbs. each, $2, best 2 bunches White Muscat, not less than 2 lbs. each, $2, and best 2 bunches any other variety, $2, Wm. T. Walters; best single specimen bunch, not less than 3 lbs., any variety, $2, Wm. T. Walters; 2d best do., $1, Mrs. Chas. J. Baker; best collection Native Grapes, not less than 10 varieties, 2 bunches each, $5, John Cook; best collection of 6 varieties, $3, J. A. Hamilton; best 6 bunches of Concords, $2, J. A. Hamilton; 2d best do., $1, Dr. I. D. Thomson; best collection Pears, not less than 20 named varieties, $5, Wm. D. Brackenridge; best collection Pears, not less than 12 varieties, $3, Wm. T. Walters; best dish Fall Pears, $2, R. S. Emory, Kent county, Md.; 2d best do., $1, Wm. D. Brackenridge; best dish Winter Pears, $2, W. D. Brackenridge; 2d best do., $1, Dr. I. D. Thomson; best dish Figs, $1, Wm. Fowler; best 6 Cantaleups, $2, Geo. Burgess; 2d best do., $1, C. C. Carman.

Vegetables.

Best collection, $5, C. C. Carman, (75 varieties;) 2d best do., $3, Geo. Burgess; best collection Potatoes, $2, C. C. Carman: Snow Flakes of S. N. Hyde, Harford Co., highly commended; best collection Tomatoes, not less than 6 kinds, $2, C. C. Carman; 2d best do., $1, Geo. Burgess; best 24 Tomatoes of any kind, $2, S. N. Hyde; 2d best do., $1, J. Bolgiano & Son; best 12 Beets, $1, best 12 Turnip Beets, $1, best 6 Savoy Cabbages, $1, best peck Borecole, $1, best ½ peck Okra, $1, best 4 Pumpkins, $1, C. C. Carman; best 12 Carrots, $1, best 6 Drumhead Cabbages, $1, best 3 Egg Plants, $1, best 6 Squash, $2, J. Bolgiano & Son; best 12 Parsnips, $1, best 12 Turnips, $1, best 12 White Onions, $1, best 12 Red Onions, $1, 2d best 12 ears Table Corn, $1, Geo. Burgess; best 12 Yellow Onions, $1, best 6 stalks Celery, $1, 2d best 6 Squash, $1, C. Boblit; best 12 roots Salsify, $1, Hy. Stockbridge; best 12 ears Table Corn, $2, S. N. Hyde; best peck Lima Beans, in pod, $1, W. D. Brackenridge; best quart Lima Beans, (shelled,) $1, Mrs. H. Eichelberger; best Sweet Potatoes, W. D. Brackenridge.

Vegetable Garden.

Some fine vegetables were to be seen at the Maryland Horticultural Society's show in October; but as each succeeding display should, if possible, cast former ones in the shade, the following suggestions of an outsider may not be out of place: Would it not be well to offer prizes, however small in amount, for every seasonable vegetable? Many kinds were on hand and others might have been produced for which no premium was offered. Would it not be well also to have second prizes for everything wanted on exhibition? The competition was close in some cases and all could not get the first prize.

The offer of prizes for the largest collection brought many things to the show that should have been left at home; besides the parties who took prizes for collections also took prizes for many of the articles comprised in their collections, which may have been all right, but seems a little mixed.

Early in the month beets and mangels should be lifted and stowed away and all vegetables that are not perfectly hardy by the 25th. The covering must be put on gradually as the cold increases. Part of the parsnip crop should be pitted and the remainder left where they grew until wanted in spring. I know of no one thing that should be more frequently discussed than the raising and preserving of celery. Our antiquated plan of raising it in beds is laborious and expensive and should be got rid of if it be possible to do so. But there are difficulties in preserving that raised in single rows, that have yet to be overcome, by reason of our variable winter climate. We must keep experimenting and reporting our progress until we succeed. From the middle to the end of the month is the time usually chosen to plant cauliflower and lettuce to head in frames. Those succeed best who make use of a little heating material to give the plants a start. Cabbage plants that are being wintered in frames will need the protection of sashes only on very severe nights, which we do not expect before Thanksgiving. If plantations of rhubarb or asparagus have to be made, the work should be done at once. In small gardens it is well worth while to manure heavily and trench for these crops. Enormous crops can be raised on a very small space. If there is a wet spot in the garden do not forget to drain it this fall. J. WATSON.

The Drought—Scenes at the North.

Messrs. Editors American Farmer:

I find this part of the country very much affected by drought. The dust upon the highways nearly suffocates travelers, and it has so thickly settled upon the evergreen trees in the village yards that they are dust color only. Pastures are entirely denuded of nourishment, not a vestige of green can be seen, and both pastures and meadows look like grain stubbles. Many springs have failed, and some of the wells Seneca Lake is lower than it has been for 30 years. Farmers commenced feeding hay and corn fodder some weeks ago. The field pumpkin crop is good as regards numbers, but are somewhat smaller than usual. Some corn fields have so many in it seems as if one could really walk across the field and step on pumpkins only. The apple crop is only an average one for this locality, and the fruit is more faulty than usual, and there is already many complaints of apples rotting. It is quite a novel sight to see the loads of apples going to the cider mills, and also those barrelled for market, that daily pass through this village. Farmers get for choice grafted fruit $1.50 per barrel, and pack in new barrels for which they pay 30 cents each. This has become an extensive grape growing district, and both the east and west shores of the beautiful Seneca Lake is thickly settled with well-kept vineyards. From here I made a brief visit to Northern Pennsylvania, (Tioga Co.,) and found the drought still more severe, but with less dust. In Willsboro, the county-seat, over two-thirds of the wells were dry, and also a majority of the streams—many of which had before never been known to fail. Here, instead of apples, I saw daily pass cord after cord of hemlock bark on the way to the several tanneries in that village. The smoke from the numerous mountain fires was very dense some mornings, enveloping the sun like a thick fog until noon. In this place I visited the apiary of E. J. Brown, Esq., where I saw the latest modes of storing honey. Frames, with large combs of splendid white honey, were removed from the hives, literally covered with bees; I listened to the explanations and viewed them—*from a respectable* distance. I saw some boxes of honey that were white as wool. From there I subsequently passed through Elmira, N. Y., and then at noon the smoke from the mountains between there and Williamsport, Pa., was so dense the sun could only be seen occasionally, and then it looked whiter than the moon. Passing eastward over the Erie railway I notice, what little that could be seen, that dry weather here has also stretched forth its withering hand. Chemung, Tioga and Broome counties, N. Y., have also suffered from this universal drought. But the further east I went the brighter appeared the vegetation, and in the eastern portion of Chenango county, Oxford and vicinity, the fields and pastures were green enough for the season of year. Chenango is a great butter county. I visited a neat, well-kept dairy, (50 cows,) where "gilt-edge" is made the year around. They had recently sold about two tons of butter in firkins at 25 cents per pound. The past summer butter sold there for 10 cents—the best at that. Near Binghampton, N. Y., I saw a large herd of Dutch belted cattle, which presented a grand appearance on account of their uniformity of markings. I find there is not that attention paid to securing choice stock for dairy purposes that there is in old Baltimore county; but we are beat "entirely" on barns. Yours, &c.,

Burdett, N. Y., October 16th, 1879. G. O. B.

Work for the Month—November.

Shorter days admonish the farmer that work should be pressed now, that he may be prepared for winter's cold and storms, and all steps practicable taken to forward the work of spring by accomplishing what may be profitably done now.

The Corn Crop.—So long as it remains in the field is subject to many risks and dangers, and it ought to be made secure. Fodder, too, should be carefully put up.

Root Crops.—These ought to be harvested before being injured by frost. Ruta-Bagas will stand out later without being harrowed than any other of these crops, excepting Parsnips, which in this country are seldom grown as a farm crop. Turnips, Mangels and Sugar Beets should be carefully handled in order to prevent bruising and consequent rotting. The most convenient way of keeping these roots is in rather narrow

trenches, covering them lightly at first with earth, and afterwards adding other coatings as the cold increases. In digging the trenches it is of importance to locate them where water will not lodge in them, and it is a good precaution to put in a bundle of straw occasionally to serve as a ventilator for the escape of moisture and the gases always engendered. Some prefer the old-fashioned conical piles, but they are less convenient than trenches. Potatoes ought to be dug only on a dry day, exposed as little as possible to light and air after digging, and stored away in a cool, dry cellar as soon as may be.

Tobacco should not be suffered to be exposed to winds and rains, and the houses opened only on good drying days. Care should be exercised not to strip too soon, but allow the leaf stems to get moderately day, when the sooner stripping is then done the better. A great deal depends upon neatness in assorting and tying, and no loss is made of time and labor spent in careful handling.

Plowing.—Whether there be or not other advantages in winter plowing it certainly diminishes the pressure of work in early spring, and other benefits are not to be gainsaid on stiff soils, the texture of which is improved by the alternations of freezing and thawing, and their stock of plant food increased by the action of the weather.

Manures and Composts. — On many farms, well situated for the purpose, a great accumulation may be made at no considerable expense of material suited to increase the manure pile. Refuse vegetable and animal matters, out of place elsewhere, will add to the bulk and value of the compost heap; and the spare time, if not the continued labor at this season of a hand and cart, may be advantageously occupied in getting such substances.

Live Stock —The most of our suggestions in the live stock department of the *Farmer* for October would be more appropriate for November, owing to the unusually warm weather we have had during the most of the past month. The very uncommon temperature, and the unprecedented advance in the price of grain, have absorbed all attention of our farmers, so that in all probability our stock has received but little attention beyond their regular salting. As soon as the nights get cold we should put all kinds of stock in the stable for the night and feed a little grain and some long feed. In the wheat-growing sections, when there is a great abundance of straw, by the early stabling of the stock and free use of straw we can greatly increase our supply of manure, and it is always one of the most important products of the farm.

Our fattening hogs should be in a forward state by this time, as they will make three pounds in less time than it will require after it gets cold to make two. Where practicable they will be found to do much better if kept in small pens, with a few in each. They will also do better to have those of the same size and age in each apartment, thereby saving many a squeal or scratch for the small porker from the bite of its larger neighbor. It will be found of great advantage to the fattening hogs to feed some coarse-ground corn meal between each of their regular feeds; it should be fed either dry or slightly wet and put in a clean trough. The constant feeding of corn alone will cause the teeth to become sore, and thus reduce the amount of corn they will eat with a relish. Remember all the time the more they eat the better it is for the owner. The great advance in the price of grain and most of the staple products of the United States will sooner or later be felt in the hog product; in fact, it is already shown, not so much in the advance on former prices as in the failure of the packers to be able to put prices down, as is their usual custom at this season of the year. This state of affairs should stimulate every raiser of hogs to get a better class of stock for the ensuing year. The price of thoroughbred hogs is now so low that it is within the reach of all to get at least a pure-blooded boar to grade up his stock with. The Berkshires, wherever they have been tried, have given great satisfaction. Owing to their black color they are *mange proof*. That alone is a great advantage where they have rough treatment, and if they have any reasonable care, will grow to be heavy hogs, and be fat all the time too.

Those of our readers who are engaged in butter-making no doubt feel much encouraged, as that article too has felt the effect of the general advance in prices. This should stimulate them to take better care of their dairy stock at this season of the year when they are so apt to be neglected. Remember all the time that it is only generous feeding that can be made to pay under low prices; also that it is only the amount of nutriment furnished over the actual waste of the system that can be made available for butter. How can a cow make butter on short frost-bitten grass alone, if it contains less nutriment than her system alone requires to counteract the constant waste that is going on all the time to support her life.

There is nothing on the farm that sooner feels neglect than the dairy cow. For the sake of experiment, take two cows equally good; stable one at night and feed liberally in addition to what grass she can get at this season of the year. Allow the other the same grass, but no shelter or feed. How soon will the loss in butter be apparent? and at the same time the neglected cow will grow thin and have a long rough coat of hair to cover her bony frame.

Orchard and Fruit-Garden.

As the season for planting new orchards and filling in where trees have died out in those already planted is now at hand, suggestions as to best varieties for the various uses for which the fruits are intended will perhaps prove of service to many of our readers. We, however, do not attempt this without a knowledge of the fact that there is great variation in many kinds, mainly due to climate, soil, situation, &c.: hence we say, if we were planting an apple orchard of 100 trees, in latitude south of Baltimore, including with our own State, Virginia and North

Carolina, our selections would be about as follows:

5 Fourth of July.	For summer.	5 Maryland Malden's Blush.	For fall.
5 Tetofsky.		5 Fallawater.	
5 Early Harvest.		5 Ewalt.	
5 Red Astrachan.		5 Bachelor.	
5 Early Ripe.			
5 Summer Queen.		20	
30			
10 Limbertwig.	For winter.	4 Herne's Crab for cider.	
10 Nickajack.		1 other good crab for preserves, either Golden or Montreal Beauty.	
10 Winesap.			
5 Shockley.			
5 Rawle's Janet.			
5 Cullasago.			
45			

100 apple trees will, of course, if proper attention is given, produce much more fruit than a family can consume, and for that reason we have so many quite early varieties, as they are remunerative when put in market.

Our selection for 100 pear trees (standard) for the latitude as above specified would be:

10 Beurre Giffard.	Ripening in succession as named.	100 trees dwarf would be Duchesse D'Angouleme.
10 Osband's Summer.		
10 Clapp's Favorite.		
25 Bartlett.		
10 Nickel.		
10 Sheldon.		
10 Lawrence.		
10 Beurre D'Anjou.		
5 Vicar.		

100 peach trees: 10 Amsden or Alexander, 10 Flate's St. John, 10 Troth's Early, 10 Mountain Rose, 10 Mary's Choice, 10 Old Mixon free, 10 Cranford's Late, 10 Beer's Smock, 10 Heath Cling, 10 Bilysu's Oct. or Comet.

If planting for market in larger quantities, our selection would be different.

Our selection of five varieties of Cherries for family use would be: Gov. Wood, Early Richmond or May Duke, Grafflon, Downer's Late Red, Black Tartarian.

For Plums we would not undertake the trouble of battling with the curculio for the difference in quality between Chickasaw and "high-grade" Gages: hence Wildgoose would be our first choice, next Moseman, and then perhaps a tree or two of Shropshire Damson for spicing, though the Moseman is equally as good for this purpose, is an enormous bearer, and not subject to black knot or injured by curculio.

Grapes, 12 vines, as follows: 4 Concord, 2 Ives, 2 Martha, 2 Goethe, 2 Salem.

Gooseberries: Houghton and Downing.

Currants: Red Dutch and White Grape.

Blackberries: Wilson's Early and Kittatinny.

Strawberries: Capt. Jack, Kentucky, and, where the soil is stiff and rich, add Triumph de Gand.

We believe where any one is planting mainly for family use the above selections will be found to meet his wants. If it is not desirable to plant so large a number of trees, the number of each kind can be proportionately lessened, or some varieties may be excluded from the list as may best suit individual desires and circumstances.

We need not here give directions for planting, as every reader of the *American Farmer* knows that it is important that proper pains be given to this operation—that roots must not be bent and twisted to suit the hole, but that the hole must be prepared to suit the roots; that the tree should be set a couple of inches deeper than it stood in the nursery before digging; that the soil should be filled in carefully among the roots and packed firmly; and that a shovelful of fine, well-rotted manure or compost spread evenly over the roots, after they have been covered a couple of inches deep with soil, will be a great help in getting a good growth the first year. Yes, we believe all, or nearly all at least, of our readers know how to plant trees, and close our remarks with the advice to purchase good trees from reliable nurserymen,—saving for yourself, by ordering directly from the nursery, the profits of the oily-tongued peddler.

The Grange and the Times.

In all well-regulated countries certain enterprises or pursuits are fundamental, and among these we may safely lay it down as an axiom that one always rises paramount. In some of the older countries, where the landed domain is circumscribed, the arts, manufactures or commerce may predominate; but in this broad land of ours, by common consent, agriculture is the predominating, the underlying interest. Now, it is a fact which needs no demonstration that men attach importance to the interest which contributes most to their revenues and their home comforts, and this principle not only applies to individuals, but to communities, and should apply to governments and nations as well. If overlooked or abused in one case, danger, loss, stagnation, is inevitable; if so in one case, why not in the other?

Planting ourselves upon this immutable principle, let us enquire if the farming interest of America has been properly fostered. The opinion has prevailed for ages in this country that if a man had skill enough to dig and reap, he was fitted for a farmer. But this theory has exploded; as a fact, it always was false. The old system of mechanism cannot vie with the machinery of the present age; the old system of transportation will not answer for to-day's travel and transmission of commodities. The merchant of to-day cannot run his business as was done fifty years ago. The medical faculty from necessity has had to change from the practice of the fathers. While this evolution has been going on, the representatives of those interests have kept abreast with the times. It would hardly be fair to say it to their discredit, but they have also made legislation bend to the furtherance of their purposes, and in doing this they have fortified themselves behind the law in the exaction of enormous profits, accumulating naturally large capital,—thus enabling them to adapt a system which has held out enchantments to many of our best young men, whose efforts have proved as fruitless as chasing the shadows of the rainbow. Demoralization of labor has followed, and the isms of the day are a consequence.

The question arises who is most to blame for this condition of things, while the land-shark is whispering peace in the ear, with his hand in the pocket feeling for the last dollar and

guiding his hand to the paper which takes the last acre? I answer, blushing for shame, yet with feelings burning with indignation, *the farmer*. Startling thought! a people possessing the brain power if developed not surpassed by any other class, a people representing one-half of America's population, a people who once furnished the balance-wheel in the councils of the nation, reduced to vassalage but little above serfdom.

Politicians know our weaknesses better than we know them; manufacturers laugh at our inertness; corporations built up in part by the aid of political farmers defy us; middlemen proclaim themselves a necessity—because, as they allege, of the incompetence of farmers to manage their own interests.

And all this boasted superiority of mind, of business qualification, of wealth, of position, is but the outgrowth of the powers our fathers possessed, but which has been yielded little by little to those who designedly played for it, and who have grown up into monopolies by escaping taxation. In many cases, encamped in their Gibraltars, they have thrown the burden of government on the producers–the people already downtrodden by oppression in many sections of the land. I appeal not to bigotry, but to the sober thought of a people capable of dispassionate thinking if the picture is overdrawn. On every hand we have met with the cry of hard times; people have been waiting, hoping, expecting a solution, but professing to find none. I have sometimes asked myself the question: can Americans, boasting as they have a right to do of their intelligence, be sincere in this matter? If a mother lack nourishment, do we wonder at a dwarfed child? If the fountain is tampered with, do we wonder at bitter waters? If we fail to protect our fields, is it a wonder if our crops are depleted? If we fail to sow, is it a wonder if we reap not? If we fail to protect the source of our incomes, is it to be wondered at if we come to want? We do not wonder at such things, yet when a parallel case is before us in the neglected interests of agriculture we fail to comprehend the death-wound to a nation's prosperity. Our grievances have become onerous. We have appealed in different forms for relief in the councils of the nation, to State councils, but only to meet with the taunt that we knew not what we asked for.

Thousands, millions, not for defence but for political considerations; but not a dollar even in the shape of a loan for the protection of agriculture. Many farmers objected to the matter thus incidentally referred to, but on the part of some of those who are reaping the rewards of our folly. The warp is being prepared to weave the net, which, by one draught, is to place this question hopelessly beyond the reach of this generation; when too late we shall see the wisdom of the projectors of the scheme; the folly and designs of its opponents; and we and ours, like the discomfited hero of a Waterloo, may weep our heart out as on some lone Helena of the sea.

With such convictions, is it any wonder that farmers are seeking for something upon which to rest a hope in the interest of agriculture—a cause, though despised by some, of which I yet feel proud to be an advocate, because it is still honorable, because it carries the seal of ages and of the eternal goodness? Theories have failed; speculation has failed; prophesy on this subject has failed; statesmanship, so called, has failed—and why? Because the diagnosis of the disease is not understood; if understood, not acknowledged Until this great fact is reached, and we as a people apply the proper remedy to stay the canker that is eating out the heart-life of a nation's hope, it will not, it cannot, in the nature of things, be better.

Grangers, ridiculed though they be by some, with all the appliances they can bring to bear honestly are working at this mighty problem. It has been tried by farmers in other forms, but could not be gotten into organized shape. There was *a link wanting*. What was that link? When the thought of woman was conceived by him who founded the Order of Patrons of Husbandry, that link was applied and fit exactly and, with trumpet tongue, he heralded to the land, *Eureka!*

Archimedes once said: "Give me the fulcrum and a place on which to stand and I will raise the world." Farmers' clubs have been for an age plying the lever, but more weight was needed. We grangers think we have it in the presence of woman. H. O. D.

Grange Fair.

All Hallow's Grange, No. 14, A. A. Co., Md., held its third annual agricultural exhibition at Davidsonville, October 11th.

There was a splendid display of farm and garden products, flowers, &c.; also a fine collection of crocheting, hair work, knitting and other domestic manufactures showing the handiwork of the ladies. The live-stock department, though not full, presented a first-class appearance. The following is a list of awards:

Cattle.—Best grade Alderney bull, T. S. Beard; best grade Alderney heifers, (twins,) Geo. Hodges.

Swine.—Best Berkshire boar, J. S. Howard; best Berkshire sow, 2d best do, J. S. Howard; best lot of pigs, Wm. Gray.

Sheep.—Best Lincoln, 2d best do., T. S. Beard; best Cotswold ram, J. S. Howard; 2d best do., T. S. Beard.

Horses.—Best pure-bred stallion, (John Hooper,) Henry Hodges; best 3-year old filly, B. F. Duvall.

Poultry.—Best collection of fowls, (Plymouth Rocks,) Mrs. J. S. Howard; light Brahmas, Mrs. M. D. Iglehart; Partridge Cochins, Mrs. E. A. Ditty; Muscovy ducks, Mrs. Benj. Watkins.

Farm and Garden Products, &c.—Best wheat, T. S. Beard; best field corn, A. B. Howard; best tobacco, Jas. S. Nicholson; 2d best, Beale Worthington; best oats, Wm. T. Lee; best pearl millet, E. A Ditty; 2d best do., Rev. Jas. Bonnar; best Early Rose potatoes, A. B. Howard; tomatoes, Master Harry Sellman; white turnips, ruta bagas, sugar beets, J. A. Iglehart; apples and egg plants, Mrs. J. A. Iglehart; Lima beans and peppers, Jno. W. Williams; pears, Mrs. J. W. Woolin; cabbage, Dr. T.

Welsh; pumpkins, carrots, mangel wurtzels and parsnips, T. S. Iglehart; Peach Blow potatoes, Geo. Williams; California bean, Rev. Mr. Haskell; butter, dried fruit, Mrs. Benj. Watkins; largest and best collection of flowers, Mrs. J. A. Iglehart; best ham, Mrs. J. A. Iglehart; Peerless potatoes, sweet do., E. A. Ditty.

Preserves, Pickles, &c.—Best preserves, Mrs. Armestead Owens; conserve fruits, Mrs. Dr. Welsh; orange and chocalate cake and canned fruits, Miss Maria Williams; domestic wines, Geo. and Iglehart Williams; pickles, Mrs. J. W. Williams; catsup, Mrs. Absalom Anderson; jelly cake, Miss Maria Mackall; jelly and brandy peaches, Mrs. T. S. Beard; rusks, Mrs. Jane Davidson; biscuit, Miss C. H. Welsh; light bread, Mrs. E. A. Ditty.

Crocheting, Knitting, &c.—Crocheting, Mrs. Jas. Iglehart; knitting, Miss C. H. Welsh; canvass work, Miss T. S. Beard; hair work, fish scale and shell work, Miss Eliza Collinson; quilts, Mrs. Donaldson Stewart; painting, Miss Sadie Stewart; carved work, John Talbott; hoes and chisels, Thos. Talbott.

There were two beautiful plows on exhibition: the Oliver Chilled, exhibited by T. S. Beard, and the Advance Chilled, by Benj. Watkins. The committee on farming implements declined making an award to plows until the proposed plowing match comes off.

SUBSCRIBER.

A. A. Co., Md., October 22, 1879.

The Harford Co. (Md.) Fair

for 1879 was one of the most successful ever held there,—the weather having been fine, the exhibits good and the attendance large. The receipts aggregated nearly $5,000, being about $500 more than at any previous exhibition, and the number of visitors something like 35,000.

The display of cattle was unusually large, there being some sixty head of Short-horns, including some fifteen head from Mr. Long, a breeder and trader from Kentucky, most of which were sold on the grounds. Jerseys were hardly so numerous as in previous years, we think, but some of the animals were fine specimens of the race. In the other departments of live stock the show was good. The show of farm products was such as to do great credit to Harford, and a notably fine collection of apples showed skill and judgment in orchard culture.

The Ladies' Department was, as usual, full to overflowing, and great interest was evinced by the fair sex in examining the work and product on display.

Frederick Co. (Md.) Fair.

As this year seems to have been a good one for county fairs, Frederick was especially fortunate. The collections of horses, cattle and other farm animals, of implements and machinery, farm products and home manufactures, were far above the average of the fine shows of that eminently progressive county. The attendance on one day was about 18,000 persons, and the total receipts from the fair amounted to nearly $10,000.

THE CECIL COUNTY FARMERS' CLUB held a fair on the farm of Mr. Adam R. Magraw, on Oct. 16. Twelve or fifteen hundred people attended, and the display of cattle, horses, fruits, vegetables, grain, needlework, &c., was creditable. The Club is doing a good work in encouraging such exhibitions.

Agricultural Implements at the Baltimore Co. Fair.

By an oversight, the list of premiums awarded at this Fair was omitted from those published in our last; we give them now. A different system prevailed to that generally adopted, and instead of a long list of prizes offered for machines the working of which could not be tested, the awards were left entirely in the discretion of the judges, who were authorized to notice and give such prizes as their judgment warranted, for machines which were effective or involved novel principles. The plan worked well. The implement men made many sales during the fair to the large number of farmers in attendance. The following were the awards:

To Griffith & Turner, for the largest and most varied collection of Farming and Garden Implements, the Society's Gold Medal. In the second do., the Society's Silver Medal, to Thos. Norris & Son.

To Joshua Thomas, for the most valuable collection of Farming Implements and Machinery, a *Special Diploma*.

Special Premiums ($5 or the Society's Diploma) were given each of the following:

C. Aultman & Co., for Monitor Steam Engine and Sweepstake Thresher and Cleaner, and for Buckeye Reaper and Self Binder.

Slifer & Woodward, for New Mower.

Thomas Norris & Son, for best Farm Wagon, and for Wood's Mower.

George Snyder, for Shucking Attachment to Straw Carrier.

A. G. Mott, for Bell City Feed Cutter.

R. Sinclair & Co., for Hay and Stalk Cutter for Horse Power.

Griffith & Turner, for Hay Loader.

A. B. Farquhar, York, Pa., for Thresher and Separator.

E. Whitman, Sons & Co., for Montgomery Wheat Fan.

A. & A. G. Alford, Agents for Remington Machine Co., for Ilion Horse Rake.

Bickford & Huffman, (by H. P. Uuderhill, Agent,) for Farmers' Favorite Grain Drill, with Seed and Fertilizer Attachment.

SMALLER FARMS AND BETTER CULTIVATION. The subdivision of large farms into a smaller number of acres, adapted to the capital and ability of each worker, is what is most needed in the delightful climate of the South, and will help fill up its waste places. W. N.

Virginia.

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

BY SAML. SANDS & SON,

At 128 *W. Baltimore Street, (sign of the Golden Plow,) Baltimore, Md.*

WM. B. SANDS, Proprietor.

SAML. SANDS, WM. B. SANDS, } Editors and Publishers.

SUBSCRIPTION, $1.50 a year, in advance. To Clubs of five or more, $1.00 each. For $10, eleven copies will be sent.

ADVERTISING RATES.

	1 *Mo.*	3 *Mo.*	6 *Mo.*	1 *Year.*
One Square, 10 lines.....	$ 1.50	$ 4.00	$ 7.00	$ 12.00
Quarter Page.....	6.00	15.00	22.50	35.00
Half Page.....	12.00	25.00	40.00	70.00
One Page.....	20.00	45.00	75.00	120.00

Cover Pages subject to special contract.
Transient Advertisements payable in advance—all others quarterly.
Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

BALTIMORE, NOVEMBER 1, 1879.

The American Farmer for 1880.

The time has come when we make our annual appeal to our friends and readers, not only to renew promptly their own subscription, but to enlarge its circulation in their respective neighborhoods. The usefulness of a journal such as this cannot but be appreciated by intelligent and thinking farmers, and every locality where such literature penetrates is benefitted to many times the amount of its cost. As a stimulator to thought, a record of the experiences of the best and most practical cultivators in the agricultural field, and a disseminator of what is new and trustworthy in experience and research, the value of a tried and proved periodical like the *Farmer*, managed and devoted to no aims other than the benefit of agriculture and the improvement and advancement of its followers cannot well be overestimated. On these grounds we submit that our subscribers owe it to us that their efforts should be put forth to enlarge its circle of usefulness, and that the circulation of the *Farmer*, now that an improved condition of things is coming to the farming class, shall by their efforts be more than doubled for the coming year. For the paper itself, we may promise for the year to come enlargement and improvement; old and tried hands will continue at the work, and new skill and experience will be added. Our terms for 1880 will be as follows:

Single subscription $1.50.

To all new subscribers the Nos. for October, November and December will be sent *free.*

Three subscriptions will be sent for $4.00, and to any person sending us five subscriptions and $5.00 we will send a copy one year free.

For $15 we will send 20 copies one year; or if preferred, any person sending us clubs of over five names at $1.00 each may retain 10 per cent. of the amount.

The Wheat Crop—Mr. Wight's Experiences.

Notwithstanding a prolonged drought during much of September and October, the wheat crop in this section, as a rule, looks well, though there are complaints more or less general of damage by the fly. Late seeding has been a necessity in many cases, resulting from the delays in putting the ground in order, but where the seed was gotten in early the plant looks well and shows vigor and good color.

During a recent visit to Mr. John I. Wight, at his beautifully-situated and handsome place near Cockeysville, in Baltimore county, we were surprised to see the luxuriance of his growing crop, and upon inquiry we found that he practices very early sowing,—his theory being that "the wheat crop is made in October." The strong growth of the wheat might have given grounds to fear over-luxuriance, but Mr. W. rather rejoiced than repined at that, and pointed to the corresponding production of roots, and to the fact that the tillering process was going rapidly on. A walk across the fields demonstrated that the fly was established, but the health and vigor of the wheat was such that its owner expected it to outgrow any injury therefrom.

Mr. Wight, who in our last issue made a report of his crop of the past season which gave him over 45 bushels to the acre, kindly promises to supplement it in future numbers with some accounts of his experiments and successes in other fields. These cannot but be received by our readers with much pleasure and profit. Mr. W. is a gentleman who, after a long and successful experience in mercantile life, has turned his attention to agriculture, the pursuit of which he follows with a devotion as rare as is the skill which accompanies it. Versed in chemical science, he has diligently applied his knowledge to the solution of the problems which farming in this section suggests, and with encouraging results; his object being not simply to grow large crops, but rather to grow large and profita-

ble ones,—his experience teaching that only large ones are profitable. This gentleman is, in short, one of a class unfortunately too rare in our country—men who are farmers from love of agriculture, with the leisure and means, as well as the disposition and technical education, to examine the unsettled questions in farm practice. His specialty has been artificial fertilizers, his experiments with which have brought him into correspondence with such inquirers as Stockbridge, Geessman and Nichols. We have memoranda of the results obtained by him in some of his trials; but having later obtained his promise to give them to our readers in more complete form, we do not make the expected use of them.

Mr. Wight has not only brought his fine farm of some 400 acres in a few years into a high state of cultivation after rescuing it from an exhausting experience of tenant farming, but he has decorated and improved it by extensive ornamental planting. Its tasteful and well-kept lawn contains some of the finest specimens of evergreen and deciduous trees to be found in the State, and additions of rare kinds are being continually made.

The Gunpowder Farmers' Club

Met October 25th, at the residence of Dickinson Gorsuch. After reading the proceedings of the club at the last meeting at the same place, the usual tour of inspection was made over the fields and through the farm buildings. Since the club met here Mr. Gorsuch has changed his system of farming, and now are seen only a few of the many milk cows kept when milk was one of his leading products. Those which are still in the stalls, as well as the horse and mule teams, looked in the best condition, and were comfortably bedded up to their knees in straw. The capacious barn showed much room at command, and as usual everything was in neat order. Some fine Berkshire pigs and some fattening hogs elicited favorable criticism. The walk through the wheat fields demonstrated that the plant was generally in fine condition of growth and health, although there were some cases where the fly had begun its work. The clover and grass fields—which had not been pastured—showed a remarkable growth of aftermath, and to some it seemed like waste of good material; but the owner calculated on no inconsiderable advantage secured to the land by the shading and mulch which the untrodden crop afforded.

Returning to the house, the entire half-hour allotted by the rules of the club to questions was consumed in the discussion of the best modes of preserving potatoes. Many interesting experiences were brought out, and the judgment of the members may be epitomized in saying that after as thorough drying after digging as possible, any method of keeping which preserved the tubers from the contact of air and light would be effective—many preferring the old-fashioned way of pitting—and the host of the day, who had but a small crop, determined to leave his where they were for convenience in handling, in barrels in his cellar.

After supper, an event in which all present joined as heartily as any part of the programme of the evening, the exercises were resumed by the reading, by Mr. John Crowther, of a portion of an article from the pen of Mr. Wm. Holman, of Virginia, published in the *American Farmer*, urging the value and impressing upon farmers the necessity of the preservation of liquid manures. From the text presented a lively and suggestive conversation ensued, the limits of which gradually enlarged so as to comprise the general management of farm manures, and at the time we were compelled to leave the club was still engaged in comparing views as to the most convenient, economical and profitable modes of preserving and applying them. A fact brought out deserves notice, that the experience of some of the members of this practical body effectually and continuously demonstrates the value of the use of plaster to fix the escaping ammonia of manure heaps, notwithstanding the opposite view held by chemists.

Winter Apples—An Enquiry.

Messrs. Editors American Farmer:

Are the pomologists of our State agreed as to the best varieties of winter apples for our tide-water soils? And which of all is, perhaps, the most profitable,—productiveness and keeping qualities considered. I should be pleased if some of your Southern subscribers would tell us something of the *Shockley* and *Nickajack*, now so earnestly commended by nurserymen. And what of the *Nansemond Beauty?* Do the States south of the Potomac raise enough winter apples for home consumption, or do they, like Maryland, depend upon the north for a supply? I have planted specimen trees of several varieties on my farm, but they have not come into bearing; and would plant a large orchard this fall, and all of one kind, if I knew just which sort was the most profitable. The *Ben Davis* is the most vigorous grower of all I have yet planted.

Anne Arundel Co., October 18th, 1879. G.

[We have no doubt our friend, Mr. Jno. W. Kerr, can answer these questions, as he makes in his nursery a speciality of this class of trees.—*Eds. A. F.*]

The Danville *Post* has taken some pains to make inquiries as to the extent of damage to the tobacco crop by the frosts of last month, and has arrived at the conclusion that it "was much more disastrous that at first supposed. From various localities we have reports of whole fields being wholly destroyed, and many instances are told us of partial damage."

CONTENTS NOVEMBER No.

Baltimore Markets—November 1.

Breadstuffs.—*Flour*—A decidedly firm market; prices 25 cts. ▼ brl. up all around. We quote: Howard street Super $4.75@5.25; do. do. Extra $5.75@6.25; do. do. Family $6.50@7.25; Western Super $4.75@5.25; do. Extra $5.75@6.25; do. Family $6.50@7.25; City Mills Super $4.75@5.25; do do. Extra $5.75@6.25; do. do. Rio brands Extra $7 50; Spring Wheat Family $6.00@6.50; Minnesota patent $7.25@8.0; Patapsco Family $8; do. Extra $7.80; Chesapeake Extra $7.60; Orange Grove do. $7.40; Fine $4.00@4.50; Rye Flour $5.50@6.00; Corn Meal. City Mills ▼ brl. $2.90; do. do. City Mills ▼ 100 lbs. $1.30@1 35; do do. Western ▼ 100 lbs. $1.25@1.30; Western Corn Chop $1.20.

Wheat.—Southern, firm and higher. We quote as follows: Southern Fultz $1.38@1.40; do. long-berry $1.40 @$1.50; Md. No. 1 red, elevator, $1.43½@1.44; Western steamer, spot, $1.33½; do. No. 2 do. do. $1.43½; do. do. November $1.43½; do. do. December $1.48½@1.49.

Corn.—Lower in price. We quote: Southern white 50@56; do. yellow 50@56; Western mixed, spot 58@58½; do. do. November 58½; do. do. December, new 58 cts.

Oats—Steady and firm, though not active. We quote: Western mixed 40; do. bright mixed 41½@42; Southern 43@45; Pennsylvania 42@42½ cts.

Rye.—We quote steady at 92 cts. for prime, 100 bus. Virginia and 500 do. Pennsylvania selling this morning at this figure.

Mill Feed.—City Mills middlings we still quote at $15 ▼ ton, at which figure the last sales were made, but in the absence of business we can give no figures for Western.

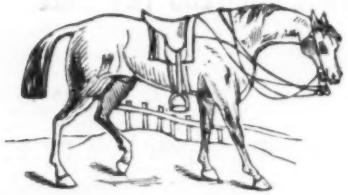
Hay and Straw.—The market is unchanged for each, and we still report Hay in good demand and firm, and Straw steady, with the stock of each light. We quote: Choice Cecil County Timothy $17.00; Fair to prime Md. and Pa. Timothy $15.00@16 00; Mixed Hay $12.00@15.00; Clover do. $11.00@13.00; Wheat Straw $7 00; Oat do. $9.00@10.00; Rye do. $13.00@14 00.

Provisions.—We quote: Bulk Shoulders, packed, $4½; do L. C. Sides do., new 6¾; do. C. R. Sides, do., do. 6¾; Bacon Shoulders 5; do. C. R. Sides 8½; do. Hams, sugar-cured, 10@11; do. Shoulders do. 7; do. Breasts do. 7½; Lard, Refined, tierces 7¼; do. do. tubs 7½; Mess Pork, new ▼ brl. $11.50.

Butter.—New York State, choice fresh tubs, 28; do. do. dairies 25@26; Western creamery, choice, 32@33; do. tubs, choice fresh, 24@25; do. do. good to prime 17@20; Glades—selections 20@21; do. dairies 16@19; Nearby receipts 14@18 cts.

Cheese.—Market strong and active, and we still quote as follows, viz: Eastern choice, full cream, 13½@14; do. good to prime 12½@13; Western choice 12½@13; do. good to prime 11½@12; do. skins 8@10 cts.

Live Stock.—*Beef Cattle*—Prices range as follows: Best beeves, $4.50@5.12; first quality, $4@4.37; medium or good fair quality, $3.62@3.75; ordinary thin steers, oxen and cows, $2 25@3.62; extreme range of prices, $2.25@5.12; most sales were from (▼ 100 lbs.) $3.25@4. *Milch Cows*—There is a full supply of all kinds, ranging at $20@50 ▼ head as to quality. *Hogs*—We quote at 5@5¼ cts., and extra at 5¾ cts., most sales being recorded between 5¾@5¾ cts. ▼ lb. net. *Sheep*—We quote butcher Sheep at 3¾@4¼ cts., and Lambs at 3½@5¼ cts. ▼ lb. gross. Stock Sheep $1.50@2.75 ▼ head.



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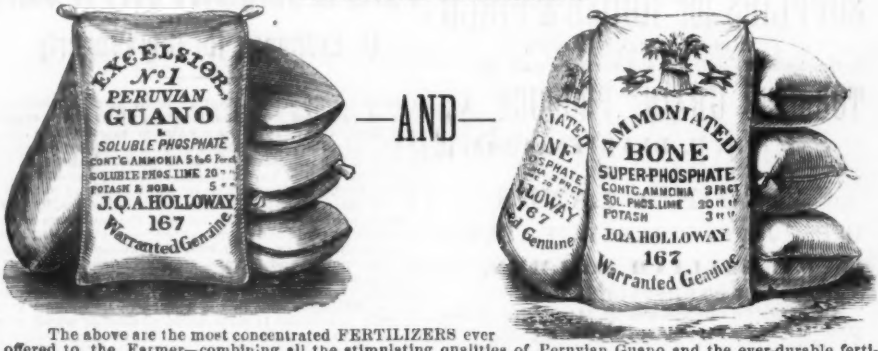

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